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NEWS SUMMARY

THE RIBA COUNCIL have deprecated a proposal that a London Society of Private Practising Architects should be formed. p. 658

MR. PETER KENYON, a partner in the architectural firm of Arthur Kenyon and Partners, has been adopted as Conservative candidate for West Willesden at the forthcoming Parliamentary General Election. p. 658

DETAILS OF A £2½m. project for the Burma Pharmaceutical Industry have been announced. Models of the scheme are illustrated on p. 661

COMPARISONS OF THE INCREASE in productivity of the building industry with other industries have been made by the Treasury's Information Division. p. 665

A SCHEME OF HIGH DENSITY flat development, incorporating a new and interesting system of access by street decks, has been designed by the Sheffield City Architect. p. 666

THE RIBA are to hold an exhibition of the drawings of the late Cyril Farey. p. 674

CHANGES IN INVESTMENT as they affect the building industry, were referred to by the Chancellor of the Exchequer when he presented his Budget to Parliament on Tuesday. p. 679

THE BUILDING RESEARCH STATION have made further studies of the use of tower cranes in building, this time for three-storey work. The conclusion reached is that the tower crane can make a valuable contribution to economy in building costs and time. p. 680

A TAX ON BUILDING

EXCESSIVE charges for water used in building have long been the subject of complaint by builders, who consistently have asked that water used in construction should be supplied by meter instead of, as at present, being charged for as a percentage on the contract price.

Builders have always known that the percentage method has resulted in their paying for considerably more water than has been used, but the refusal of water authorities to permit a metered supply has made difficult the obtaining of accurate data. Recently, however, a Mid-Sussex authority, Cuckfield Rural District Council, has carried out a test on water supplied for the building of a £2,000 bungalow. The charge under the normal percentage-on-contract system would have been over £7; the cost as shown by an installed meter was actually 10s. 3d. There is no reason to believe that the ratio between actual and estimated cost would not be maintained on larger contracts.

In discussion on this matter (reported on page 665), a member of the Cuckfield RDC described the normal method of charging for water as a tax on private building, a description with which few will disagree. What does this tax amount to? Taking the total annual capital investment in building and civil engineering at £2,000m., and applying the Cuckfield charges, it can be calculated that the building industry may well be paying £7m. for water used in construction the actual cost of whose supply is £500,000. The difference of £6½m. represents a quite unjustifiable tax on building, and one which must be reflected in building costs and rents. The view expressed by another member of the Cuckfield Council that "if we reduce the price of water, the builders will not reduce the prices of their house proportionately" takes no account of the effect of economic forces in a competitive market.

It must now be clear that domestic and industrial water rates are being subsidised to a very considerable extent by the excessive charges made by the water undertakings to the building industry. Not only is such practice now shown to be unjust, it has long been known to be wasteful of that very commodity whose use in a period of rapid development must always be conserved—water itself. Metered supply to building sites would of itself prevent the waste of many million gallons every year.

Water authorities will be well aware that in changing their practice to allow the supply of metered water to building sites they will deprive themselves of a handsome bonus which for many years has enabled them to supply water for other than building purposes at a lower than economic rate, and that any change may well mean some increase in the general water rate. Such authorities, it is hoped, will consider the question that arises from the Cuckfield experiment and not flinch from the implications. Water suppliers operate a monopoly and must operate it fairly.

Notes of the Week

LONDON PRIVATE ARCHITECTS

A PROPOSAL to form a London Society of Private Practising Architects was reported to the RIBA Council on April 5, when, after full consideration of the matter, it was decided that such a proposal was to be deprecated. We gather that the view was expressed that the profession must be regarded as a single entity composed of members whose ultimate interests in the advancement of architecture are identical, and that any move which might give Government authorities and the public generally an impression of divided counsels is unwise and likely to impair the influence of the profession when making representations on matters of importance.

Undoubtedly the RIBA Council has taken a statesmanlike attitude on the matter, for the advancement of architects should be subsidiary to the advancement of architecture, which should be the common aim. At the same time, a time could conceivably come when no amount of statesmanlike *dicta* may serve to paper over cracks in the frontage which a profession displays to the public. That point in time could be almost indefinitely deferred if architects in official practice would encourage their authorities to put out a reasonable proportion of their architectural work to private architects, a practice which is as sound economically as it is in equity.

Many county and municipal authorities already follow this excellent practice, which adds weight to the RIBA Council's contention that these matters are best discussed on a regional basis by the Allied Societies. There are, as some private architects know to their cost, local pockets of resistance, and on whether these pockets can be reduced and others be prevented from forming depends the efficacy of what all agree is the rational view. It is well to remember that, to paraphrase another saying, harmony must not only exist but be seen to exist, and those who believe in unity must also work for it.

MEXICAN ARCHITECTURE

WE are glad to note that the postponed RIBA exhibition of Mexican architecture has now been rearranged and was, in fact, opened by the Mexican Ambassador on Wednesday.

The Exhibition, which will be reviewed in a future issue, consists in the main of contemporary work although there is also included an historical section. It is the first exhibition of Mexican architecture to be shown in this country. It is on view at 66, Portland-place, W1, until May 2 (Monday-Fridays 10-7, Saturdays 10-5). After the showing at the RIBA it is likely that it will go to the Building Centre for 10 days from May 4-14. The Exhibition is then to visit several countries on the Continent.

THE RA REJECTS

HARD on the suggestion made in our issue of April 8 that the rejects from this year's Architecture Room at the Royal Academy exhibition might be exhibited in London comes the news, printed in the *Manchester Guardian* of April 14, that an artist, Mr. John Williams, proposes to show Academy rejects in the disused ballroom of an hotel in Lancaster Gate. Mr. Williams, no doubt, is thinking principally of paintings but it is possible that architectural drawings might also find a place.

Whether there will be many of these remains to be seen, for it has been said that the President of the Royal Academy has secured additional space for the exhibition of architectural subjects which it may prove difficult to fill. However, this rumour will shortly be verified for the exhibition opens at Burlington House on April 30.

THE AA RECEPTION

THE ARCHITECTURAL ASSOCIATION'S annual reception, which was held at the AA's headquarters in Bedford-square on Thursday of last week, once again succeeded admirably in being a social event out of the common mould that seems inevitably to be the price paid for the slick service and plush comfort of the large hotel. If the corridors are narrow and the geography of the building difficult this, one feels, is more than made up for by the individuality of the setting. Officially, the number of members and guests (nearly 1,000) received by the President, Mr. Peter Shepheard, and Mrs. Shepheard this year was as large as last, but whether it was due to better organisation or some other reason the excessive crush that has sometimes marred the occasion seemed to be absent, and opportunities for informal meetings between members and their guests consequently easier and pleasanter.

Usually of a high standard, the exhibitions and other forms of entertainment did not disappoint. The exhibitions catered for a catholic variety of tastes, and ranged from "Aircraft Old and New," with models and illustrations, to Mr. Peter Shepheard's delightful "Woodland Birds," the drawings being destined for a King Penguin book. It is good to be reminded that even in these busy days there are still among us collectors of unusual objects, and the exhibition of Victorian Song Covers in the Ground Floor Gallery, lent by Mr. Clare O'Rorke, recaptured the spirit of an age that has long been decried but is increasingly being considered as worthy of more study. Last but not least among the exhibitions, but included among "A Selection of AA School Work," was the much praised work, which made an exhibition by itself, on Byzantine Mosaic Interiors, submitted by Miss Sheila Gibson for the Bernard Webb Studentship in February this year.

The Section AA Theatre Group presented three performances, in the course of the evening, of "The Anniversary," a farce by Anton Chekhov, and for those who wanted something requiring less concentration there was a cabaret in the Library. Dancing in the basement, where the lively decor was apparently inspired by the renewed building activity in our towns and cities, was as last year to Lou Preager's Ambassadors Band. The excellent quality of the refreshments rounded off an enjoyable evening.

A PARLIAMENTARY CANDIDATE

MR. PETER KENYON, MA, AMICE, has been adopted as Conservative candidate for West Willesden at the General Election on May 26. Mr. Kenyon is a partner in the architectural firm of Arthur Kenyon and Partners. We wish him every success, for Sir Alfred Bossom, at present the only architect in the House of Commons, has for long fought a single-handed battle in matters which concern the profession.

TOWER CRANES IN HOUSING

THE BUILDING RESEARCH STATION have followed up the trials in two-storey housebuilding with a rail-mounted tower crane at Norwich (already reported in *The Builder*), by further studies, described on page 680, of the value of this machine for three-storey work. At Manchester, shops, with two-storey maisonettes over were built, and at Norwich the crane was used in building a three-storey block of flats.

Comparison of similar work by normal methods, carried out by the same organisations showed that, in general, the savings made were of the same order as those achieved at Norwich in two-storey house building. On the shops at Manchester, in addition to a saving in the cost of manual labour, the building time was reduced by about 50 per cent., and at Norwich there was an even greater reduction of building time.

The conclusion reached is that the tower crane, used with a suitable programme and an efficient site organisation, can make a valuable contribution to economy in building costs and building time. It is to be hoped that the industry will not be slow to take advantage of this now proved advance in constructional methods.

THE LITTLE GEORGIAN HOUSE

A PLEASING CEREMONY took place on April 14 when Professor Richardson, president of the Royal Academy, unveiled a bronze plaque put up by St. Pancras Borough Council to commemo-

COMING EVENTS

FRIDAY, APRIL 22

RIBA.—Exhibition of Mexican Architecture. 66, Portland-pl., W1. Mondays-Fridays 10-7: Saturdays 10-5.

MONDAY, APRIL 25

INSTITUTE OF QUANTITY SURVEYORS (LONDON BRANCH).—AGM, Caxton Hall, Caxton-st., SW1. 6 p.m.

TUESDAY, APRIL 26

SHOREDITCH, HACKNEY AND HIGHBURY HOUSING ASSOCIATION.—AGM and a talk on "The Smoke Problem in London," by Mr. C. J. Regan, BSc., FRIC, 7, Albemarle-st., W1. 5 p.m.

WEDNESDAY, APRIL 27

ARCHICTECTURAL ASSOCIATION.—"The Work of Philip Webb and Norman Shaw," by Mr. John Brandon-Jones. 34, Bedford-sq., WC1. 8 p.m.

INSTITUTE OF FUEL.—"Fuel and Power Research in Britain," by Dr. W. Idris Jones, CBE. Institution of Civil Engineers, Great George-st., SW1. 5.30 p.m.

THURSDAY, APRIL 28

FACULTY OF ARCHITECTS AND SURVEYORS (LONDON BRANCH).—AGM. St. Ermin's Hotel, Caxton-st., SW1. 7 p.m.

INSTITUTION OF STRUCTURAL ENGINEERS.—"Colliery Structures," by Mr. G. P. Bridges. 11, Upper Belgrave-st., SW1. 6 p.m.

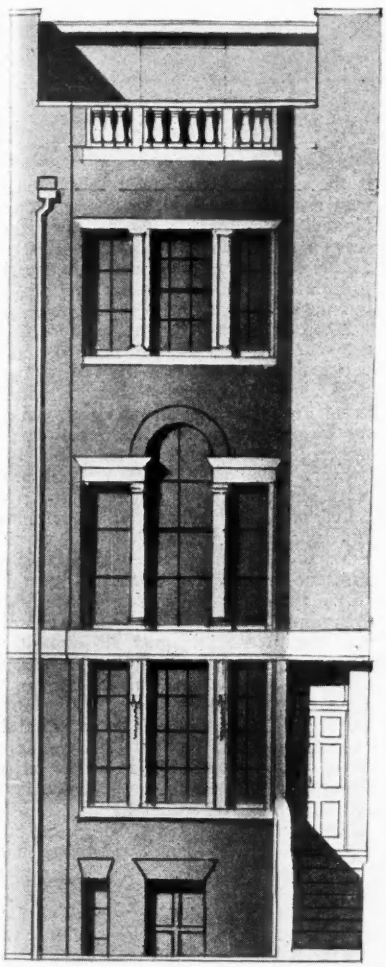
FRIDAY, APRIL 29

INSTITUTE OF HOUSING.—Week-end Discussion School. Guinness Trust Holiday Home, Newhaven. Continuing until May 1.

rate the residence of John Braithwaite, inventor and railway engineer, at The Little Georgian House, 318, Euston-road, NW1. (The text of Prof. Richardson's speech is given on this page.)

Two years ago the house was hidden (in the manner of so many Georgian houses in London) by an unattractive modern building. The property was then bought by Car Mart, Ltd., of Euston-road. The directors of this company saw its beauty and carefully restored it.

Mr. F. E. Hansford, FRSA, a distinguished local historian, became interested in this work and discovered that the house had been at one time occupied by John Braithwaite the younger, who includes amongst his considerable and varied achievements the ventilation, in 1820, of the House of Lords by a system of air-pumps, and nine years later co-operated in the building of the first locomotive to reach the speed of a mile a minute.



THE LITTLE GEORGIAN HOUSE, 318, Euston-road, on which Professor A. E. Richardson, PRA, unveiled a plaque last week to commemorate the residence there of John Braithwaite, the younger (see Note). The architect for the restoration was Mr. E. G. Pook, MInstRA, staff architect to Messrs. Howard Farrow, Ltd.

Mr. Hansford has also written a brief illustrated history, delightfully bringing the house and its setting to life; recalling the days when the influence of the Adam brothers was paramount in London and especially in the region of St. Pancras.

THE LITTLE GEORGIAN HOUSE

Opening by Professor Richardson

THE following is the text of a speech by PROFESSOR A. E. RICHARDSON, PRA, FSA, FRIBA, at the unveiling of a plaque to commemorate the residence of John Braithwaite, inventor and railway engineer, at The Little Georgian House, 318 Euston-road, NW1. (See also Notes of the Week.) He said:

This is a memorable occasion, and one which proves that St. Pancras is interested in the Arts. That, indeed, is nothing new, for 150 years ago it provided homes for Royal Academicians. John Constable, from 1822 until his death in 1837, lived at No. 76 Charlotte-street which had previously been occupied by Joseph Farington, RA, while Joseph Nollekens, RA, in the year 1770 leased No 9 Mortimer-street, the property of Francis Milner Newton, RA.

The Little Georgian House has been magnificently restored, and I would pay a tribute to those who have undertaken the restoration. What has this house seen during the 160 years of its existence? It has witnessed the laying-out of Regent's Park, and the appearance of London's first omnibus—Shilibeer's—that ran from the "Yorkshire Stingo," Paddington, along the New-road to the Bank, the fare being one shilling. It saw the building of Holy Trinity Church, Kentish Town, and the inauguration of the Birmingham service, by the London and Birmingham Railway, on September 17, 1838.

Furthermore, this remarkable example of rather late Georgian architecture was itself the home of the celebrated engineer and inventor, John Braithwaite, who not only cast the statue of Queen Victoria's father, which stands in Portland-place, but constructed the first locomotive engine—"The Novelty"—that ran at the rate of a mile a minute.

These are but a few of the incidents in the story of The Little Georgian House. When it was built the green countryside stretched from here to the Parliament Hill Fields and to the pleasant villages of Hampstead and Highgate. It is possible that Cowper would have classed this little house of 1790 as "a country villa," and it remains for your delight and your enjoyment in a world of modern architectural match-boxes and packing-cases. I have not the same eloquent command of language as that of my predecessors in office, but my opinions can be just as strong as theirs—you just wait till the Academy banquet and see!

The man in the street is entitled to see beautiful and pleasing things, and to enjoy them. Let our thanks go forth, therefore, to the directors of Car Mart Ltd., who proclaim to-day, "We trade in cars, but we like fine art, and this Little Georgian House is for the free enjoyment of each passer-by."

CORRESPONDENCE

WAR OFFICE ARCHITECTURE

To the Editor of *The Builder*

SIR,—On behalf of 45 Fellows and Associates of the RIBA, 15 otherwise qualified registered architects and 60 Members and Associate Members of the Institutions of Civil and Structural Engineers employed by the War Department, we write to protest against the last sentence of your editorial comment "Wellington Barracks" in the issue of April 1. We feel it contains derogatory implications against our professional capacity, which you would never have allowed to appear in your columns had you been better acquainted with the extent of the resources available to the War Department for "building-up" structures.

No doubt this results through the lack of publicity which the War Department, in common with the other Services, is compelled to observe regarding its achievements.

We feel that we are entitled to ask you to take suitable steps to correct the erroneous impression which has been given.

CHARLES A. RICHARDS
[OBE, ARIBA, AADipl.]

MORRIS T. SHAW
[BSc.Eng.(Lond.), AMICE, MInst.Struct.E.]

115 Beaufort-street, SW3.

*** We are glad to give space to this letter, and think that one way for the Architectural Department of the War Office to give publicity to the work done by its members would be to publish some of its recent architectural work, not all of which can be on the "secret" list; we shall be happy to make space available for that purpose, and have informed Mr. Richards accordingly. As this discussion (which concerns the rebuilding of the Wellington Barracks in Birdcage Walk) is purely one affecting visual design, engineers—whether civil or structural—need not feel themselves implicated.—ED.

THATCHING HOUSES

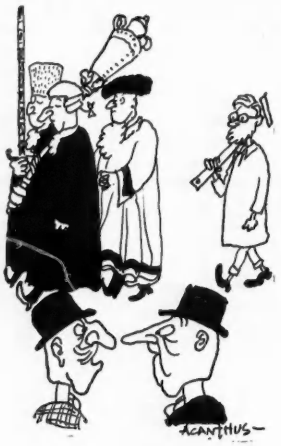
To the Editor of *The Builder*

SIR,—In his very fair review of my book "Know Your House," "M. S. B." writes: "Several pages are devoted, *rather surprisingly*, to the craft of thatching, and a list of thatchers is given."

A few years ago I, too, would have been surprised to find a writer devoting so much space to a "lost art." My experience, however, in the role of consultant to a lay journal dealing with all aspects of the home has made me realise the extent of the tremendously nostalgic appeal which thatching still holds for many thousands in this country.

It is rare that my postbag does not contain a query concerning the use of this material, and since the number of thatchers has now increased very satisfactorily, I felt bound to support what I believe to be an excellent roofing material both from the practical and aesthetic viewpoints.

If its use calls for careful designing in



" I see there's a vacant space for the new City Architect."

order to avoid fire risks—then the challenge should not go unanswered on our part.

ERIC AMBROSE [BA, FRIBA]

5, Willifield Way, NW11.

DISCOVERY AT THE MONUMENT

To the Editor of *The Builder*

SIR,—An interesting link with the past came to light during the recent repairs which were executed on the Monument in the City of London. The firm of asphalt contractors who were replacing the worn mastic asphalt paving at the top of the Monument discovered between the wearing surface and the underlay a document which had obviously been placed there by the original asphalt spreaders when they were laying the work in 1888. This was torn but was put together and a print of it is illustrated.

The original work was carried out by Claridge's Patent Asphalte Co., Ltd.; this company, which is no longer operating, was one of the best-known firms in the trade in those days.

The man Blake, who is referred to in the document, related the details of the work involved to his grandson, who is still in the trade. In order to execute the work the whole of the asphalt, fuel and plant had to be carried up the stairs inside the Monument. Amongst other details he referred to a well-known boot-black whose station was at the foot of the Monument and who was incapacitated by some hot asphalt which fell on him during the execution of the work. His claim for compensation failed, as he had been told specifically not to stay at the foot of the edifice while the work was progressing.

It is interesting to note that in re-doing the asphalt work the protective rail, which was added to prevent prospective suicides, had to be removed, and the replacement of the asphalt was carried out from scaffolding. This had to be erected as an independent structure, the cost of the scaffolding being about eight times the cost of the actual asphalt.

The replacement was necessary because of the wearing away of the surface, and this is hardly surprising when it is realised that approximately half to three quarters of a million people a year pay to walk to the top of the Monument, and the area for traffic is very small.

F. C. WOOD, Secretary,
National Employers' Federation of the Mastic Asphalt Industry.

21, John Adam-street, Adelphi, WC2.

EDUCATION FOR BUILDING

To the Editor of *The Builder*

SIR,—Further to the report in your issue for March 18, and the reply by Mr. Ian Crichton of April 1, I feel I must reply on behalf of the Sheffield Building Trades Employers' Association and point out that the remarks passed by my president on the occasion of the Sheffield and District Clerks of Works and Building Foremen's Association Annual Dinner, on February 16, were made as a mere humorous after-dinner speech to people present who are actively engaged in the education and training of apprentices rather than as a serious opinion or prophecy of the shape of things to come.

It is regrettable that Mr. Crichton misunderstood these remarks but also, I must admit, excusable, and had he had the pleasure of being present at the above-mentioned dinner I feel sure he would have appreciated, as did all present, that the implications were merely a few further jocular remarks to add to the already confusing issues raised by production of the recent Television play " 1984 ".

May I assure Mr. Crichton and all your readers that the Sheffield Building Trades Employers' Association are very closely allied to the training and education of apprentices and are in full agreement with all conditions and arrangements at present in force for such training, and are in fact members of a Building Advisory Committee formed by the Sheffield Education Committee to discuss the betterment, etc., of training methods. Further, I may point out that the Principal of the Sheffield College of Commerce and Technology has in fact attended our annual meetings to address our members on further education of youths in the industry, with our full blessing and support, and both he and the Headmaster of the College frequently attend joint meetings with us for consultations.

In closing, may I again seek your indulgence in requesting that all your readers accept that the speech referred to was fully intended in a humorous vein and not in any way a serious considered opinion.

R. ANDREW,
Secretary, Sheffield Building Trades Employers' Association.

Builders' Exchange, Sheffield, 1.

CATALOGUES AND BROCHURES

To the Editor of *The Builder*

SIR,—Recent correspondence in *The Builder*, makes me wonder just what is the extent of some people's helplessness and others' audacity. Some complain because technical literature they receive at no cost to themselves is undated, others are chagrined because the proprietors of merchandise happen to include sales matter with their catalogues.

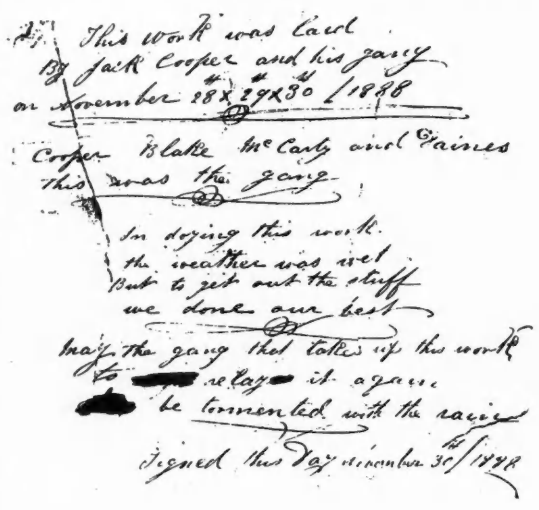
When I receive literature *gratis* I assume a favour has been afforded me. My occupation must indicate that the extent of my sales ability is limited possibly to recommendation. Nevertheless, sales facts can aid me when certifying day-work sheets, checking certificates, ascertaining facts relating to delivery dates and disorganizational problems centred around materials deliveries. Surely honest manufacturers whose integrity and business acumen lead them to publish and distribute illustrated and descriptive brochures at their own cost are also entitled to try and sell their goods!

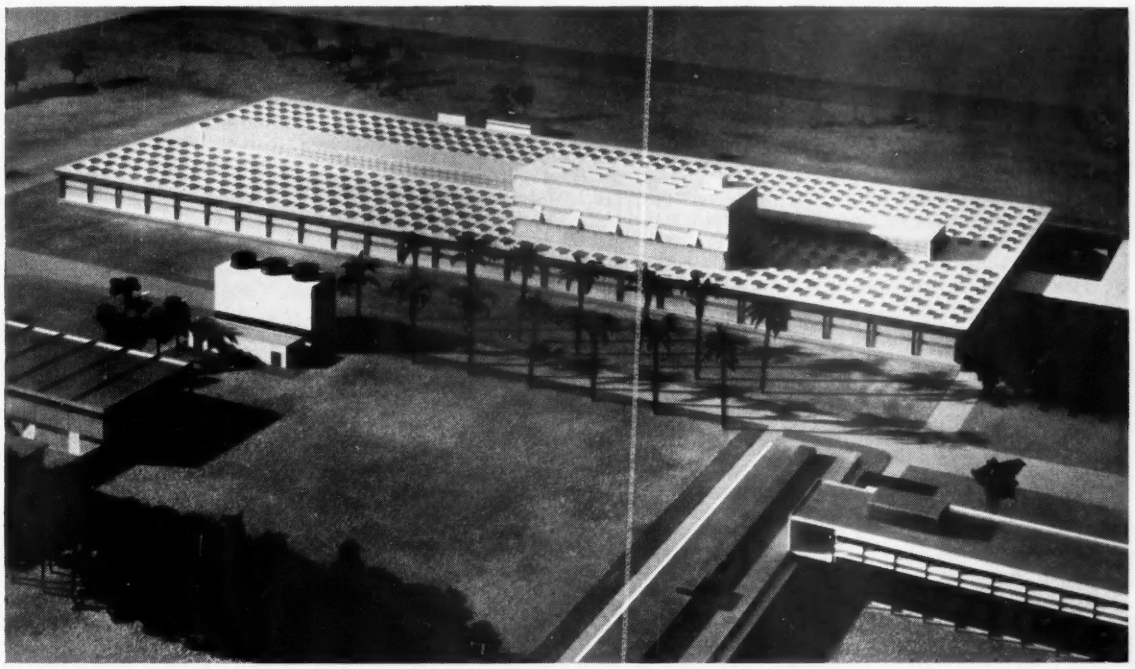
Perusing my shelves of free literature, I note that some are quite old and others quite recent, and many have useful specialists' tables, by-laws and references to appropriate British Standards and Codes of Practice. All are of professional technical interest and must be quite a blessing to those who cannot always have reference libraries at hand. Anyway, do building materials become out of date so often or so soon? I feel sure old brochures must be of some use if only to maintenance supervisors and researchers for their comparative factors.

May I be allowed, Sir, to thank all those advertisers who have been so kind as to help me keep abreast of the times for the past 30 years or so; I am not so sure I have always been able to reciprocate to the extent I would have liked but I do not scorn their " sales talk," nor shall I destroy their free gifts because they are not chronologically or otherwise enumerated.

H. E. CAMPBELL [MICW, AISanE].

40, St. Paul's-road, N1.


This work was Carl
By Jack Cooper and his gang
on November 28 x 29 x 30 / 1888
Cooper Blake McCarty and Haines
this was the gang
In doing this work
the weather was wet
But to get out the stiff
we done our best
may the gang that takes up this work
to relay it again
be tormented with the razies
Signed this Day November 30 / 1888



View of a model of the main production building.

BUILDINGS FOR THE BURMA PHARMACEUTICAL INDUSTRY, RANGOON

ARCHITECTS: JAMES CUBITT & PARTNERS

BUILDERS: HOLLAND & HANNEN AND CUBITTS, LTD.

THIS project forms part of the Burma Industrial Development Plan and is located in the new industrial zone north of Rangoon. The buildings and engineering services (exclusive of manufacturing plant) are estimated to cost approximately £2,500,000, and to be completed by the autumn of 1956.

The industry is divided into three main sections: (a) the alcohol and yeast vitamin plant; (b) the biological institute; (c) the main production building.

The alcohol and yeast vitamin plant is being fabricated by Messrs. A. P. V., Ltd., and will have an output of 2,400 gallons of alcohol and a quarter of a ton of yeast per day.

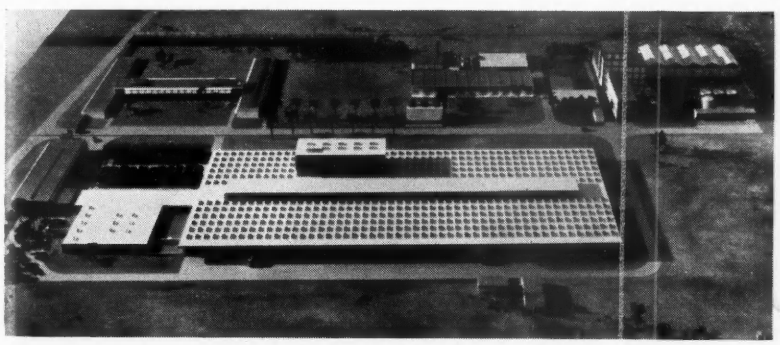
The biological institute, consisting of laboratories, animal farm and operating unit, is designed to produce all the vaccines and sera required by Burma.

The main production building, for the manufacture, storage and packing of pharmaceuticals, covers approximately 250,000 sq. ft. of floor space and is designed to allow maximum operational flexibility. To this end all lavatories and offices have been planned on mezzanines to avoid obstructing the main factory floor. The problems involved in designing highly controlled working conditions in tropical climates are virtually new and a number of technical innovations have been incorporated into the design.

The roof construction is designed to give a double skin roof which not only conceals most service pipes but also gives the high degree of thermal insulation necessary where large areas of the building are to be air-conditioned. An ingenious system of top lighting, using the roof space as a diffuser, has been worked out in collaboration with the Building Research Station to give well lit working conditions while excluding tropical glare and solar heat. The roof construction also allows for universal movable partitions, conveyors and overhead equipment, thus making it possible to move and expand departments with the minimum disturbance.

Since half the building is required to be air-conditioned, the problem of giving adequate cross-ventilation to the other half has been overcome by raising the centre portion over the mezzanine gallery and installing banks of power-operated louvres.

Owing to the scarcity of skilled building labour in Burma considerable use of factory-made building elements and dry and precast construction has been made. This has also resulted in very rapid erection above slab level—an important factor in a country where building operations are seriously affected by monsoon rains for nearly half the year and a major consideration in the programming of the building operations. Although the architects were only commissioned at the end of 1953 it is expected that the site works and buildings will have progressed to the point where building operations will not be seriously impeded by the coming rains.



View of the main production building with the biological laboratories behind (centre) and the alcohol and yeast vitamin plant (right).

CONCRETE CONSTRUCTION IN ITALY

Visit Organised by Joint Committee on Structural Concrete

IN September-October, 1954, the Joint Committee on Structural Concrete (representing the Prestressed Concrete Development Group, the Reinforced Concrete Association and the Cement and Concrete Association) organised a nine-day visit to Italy for the purpose of inspecting some of the principal post-war concrete construction in that country.

The party, which included architects, consulting engineers, contractors, products manufacturers and members of government departments and the services, numbered some eight people. They left by air on September 25 for Milan, and after inspecting work in Milan visited Turin, Bologna, Florence and Rome, returning to London on October 3.

The undertakings visited included a large number of housing schemes, office blocks, factories, garages, bridges, and a wide range of public buildings. Descriptions of some of the constructions seen are given below.

The outstanding impression left by all housing work in Italy is the preponderance (to the near-exclusion of all else) of tall blocks of flats. Not only within the towns, but on new housing estates on their outskirts, compact upward building is the rule. To judge by what was seen, the Italians, very wisely, are conserving their agricultural land and there is absolutely no sprawl. Housing varies in character from the austere to the luxurious; from the estate which is a self-contained townlet to the tall block in the city; from slum clearance schemes to the millionaire skyscraper in Milan.

Popular housing is in general constructed under the "INA-Casa" plan, organised by the government through the INA, the State insurance company, and financed on a co-operative basis; the State (represented by the Ministry of Labour) participates to the extent of one-third, and a social insurance scheme (to which employers and employees contribute one-third each) provides the remaining two-thirds. The State's share appears to be largely drawn from the ERP fund. Housing is allocated to members of a waiting list, on a points system, as in Britain; when points are equal, the final allocation is made by lottery. The owner then pays rent for 25 years, after which time the flat or house becomes his property. Alternatively, as in some of the Roman schemes, the buildings are constructed under a government plan with funds provided jointly by the Ministry of the Interior, the Ministry of Public Works, and, in some cases again, in co-operation with the INA-Casa scheme. The local authority generally provides services and amenities. Private housing schemes, on the other hand, are generally financed by the Società Generale Immobiliare, an important building society which also has facilities for construction, and which builds flats for purchase, either outright or by mortgage.

TURIN HOUSING

In Turin the Fiat Motor Company employs the greater part of the city's industrial population, and housing estates for Fiat workers cover huge acreages with tall blocks of flats, both on the city's bombed areas and on its fringes. Their construction, in nearly all cases, is with reinforced concrete frames, and infilling walls of brick, generally rendered.

One such estate, where the blocks are in the main three-pointed stars in plan, with one flat to each arm, the infilling walls are rendered with a "Tyrolean" type of rough-surfaced rendering in a variety of pale colours, while the cantilevered balconies are plain concrete, painted white. This estate formed a complete new quarter on the outskirts of the city, with its own schools, church, shops and community buildings. Other flats in the town showed a remarkable variety of facings, notably small rectangular 1 in. by 3 in. marble bricklets bedded horizontally and quite roughly, which are one of the standard forms of finishing Italian buildings, and one of the most effective, particularly when combined with the equally popular ceramic mosaic. Another popular finish was large, thin slabs of the grey-green stone serpentine.

One block, which was faced with the grey-white marble bricklets, had a pleasant pattern of balconies up each corner of the building; another which was also notable for its spacious balconies had the side elevation faced with brown and grey mosaics while the front, to the main street, was painted white, picked out with ceramic-faced cills. Another block of privately built flats had walls faced with the marble bricklets, and projecting panels in which windows alternated with a facing of "crazy paving."

One block of "luxury flats" had the windows arranged in alternately recessed and projecting panels; where they were recessed balconies filled the space between the projecting panels; the building was finished with a pattern of rose and red mosaic. In this block the flats were all built for sale; one gathered the purchase price was £12,000 or £13,000 per flat.

In Bologna new housing became very necessary soon after the war, as a result of unprecedented industrial development, and the arrival of thousands of new workers.

In the "Borgo Panigale" estate, designed for these new arrivals, Bologna had one of the most attractive housing schemes seen on the tour. It is a self-contained townlet with its own schools, church, shops and community centres,

Flats and Bookshop, Turin.

Borgo Panigale Housing Scheme, Bologna.

where tall blocks of flats are mixed with smaller ones and all are varied in design and charming in colour and finish. This estate is being constructed under the INA-Casa scheme, the public roads, gardens and services being provided by the municipality.

The estate already houses 4,000 people and the number is increasing as more buildings go up. The flats generally consist of four rooms; the floors are tiled throughout with small 4-in. tiles. Externally the buildings are notable. Small houses—in the minority—are constructed with load-bearing brick walls finished with rendering; the taller blocks of flats have reinforced concrete frames, with brick infilling and a rendered finish. Some of the colour schemes are worth remembering: white rendered walls, solid *in situ* balcony fronts painted rust, lime green shutters; rough-textured pale beige rendering, jade green shutters; pale rust smooth rendering with deeply recessed balconies lined with white; sand-coloured walls and projecting concrete balconies painted cream, with green railings. There are tall white blocks with yellow-painted window boxes and lime-green shutters, tall sunflowers nodding against them, and one long row of four-storey flats, their roofs together making a saw-toothed line, are painted pink.

These flats were said to cost £1,500 each to build—or £300 a room (in Italy the kitchen-bathroom-lavatory-entrance assembly rates as two rooms). The whole scheme (dwellings only) was said to cost about £8½ million, with services accounting for another £850,000. Rents average some £5 a month and the flat becomes the tenant's property after 25 years. The co-ordinating architect for the scheme is Giuseppe Vaccaro; under his general direction the buildings are the work of seven architects.

EXAMPLES IN ROME

Very great housing activity was evident in and around Rome. The population of the city, which after fluctuating over the centuries, was between the wars practically the same as in the days of the Roman Empire—at around the million mark—has practically doubled in the last few years owing to the influx of settlers from the ex-Italian colonies, displaced people from other regions, and of industry.

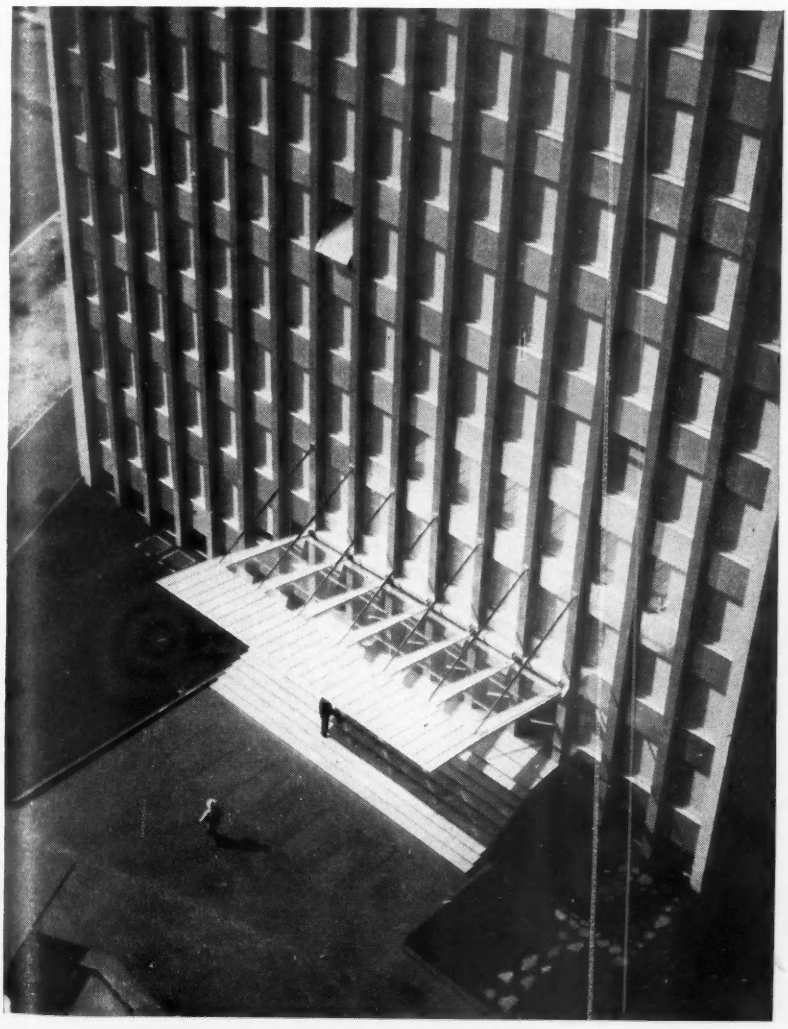
To house these people large numbers of extensive housing estates, consisting entirely of blocks of flats, have been and are being built around the city. Those visited were the Casilino I and Casilino II estates, the Tuscolano estates I, II and III, all of them well advanced and lived in, and the Acilia estate planned to house refugees from the Trieste region, which was still in the early stages of construction at the time of the visit.

The Casilino and Tuscolano estates were very extensive—in effect, new suburbs, with broad streets and tree-lined boulevards, consisting entirely of tall blocks of flats, and with the usual suburban complement of shops and cafés. The building was open—quite different from the over-dense arrangement of blocks in earlier Roman suburbs of similar type. It was not, of course, complete, but it seemed likely the density would remain much as when it was seen, with open spaces between the blocks, which were in general from four to eight storeys high.

The Casilino II estate was examined in some detail. This new portion of a large scheme consisted of seven five-storey blocks, which together provide 133 flats. Later, 12 more similar blocks are to be constructed. An interesting feature of this group of buildings was the construction of the foundations. Excavations had revealed an extensive network of underground passages below the site of the buildings which would have made normal foundations almost impossible to construct. It was therefore decided to treat these passages as a basement to the new buildings and the foundation piles were reinforced where they coincided with the passages, so that they acted as columns supporting the whole structure. The solution appears to have proved very successful. These new blocks have reinforced concrete frames and cavity infilling walls of brick—an outer leaf of solid bricks and an inner of hollow bricks. The floors are of the standard concrete-joist-and-hollow-pot type. The roofs are partly flat and partly pitched, the pitched portion, which is covered with Roman tiles, being carried on the reinforced concrete frame, and the flat portion, which provides accommodation for the water tank and the services, being constructed with lightweight concrete covered with asphalt. Balconies are either recessed, or cantilevered projections with dainty iron railings.

Finishes, while simple, are pleasant; floor finishes are generally of the terrazzo type; walls are rendered, and painted, above a dado of travertine.

This scheme is built under the " Casa Popolari " or " popular housing " scheme and flats are allocated, as in Britain, from a list of applicants held by the authorities. Rents ranged from 2,000 to 2,500 lire per room per month.



The Sirti Building, Milan. Paolo Chiolini, Architect.

OFFICE BLOCKS

Milan, the outstandingly rich industrial city of Italy, had, as might be expected, the finest office blocks. Two of the most notable were visited in detail. These were the neighbouring Lane Rossi

and Sirti buildings. These two new blocks, and the nearby Pirelli Garage, form part of a new town-planning scheme according to which this part of the centre of Milan is being redesigned. Bombing in this area, while doing considerable damage, did not destroy an entire quarter, but, rather than reconstruct piecemeal, remaining streets were demolished so that the entire area could be clear for replanning.

The Sirti building (architect, Paolo Chiolini) is immediately behind the Rossi building and is the headquarters of a cable-making concern owned by the Pirelli Rubber Company. This company, incidentally, owns the whole of this reconstruction area.

This building, though lacking the superb internal finish of the Rossi building, is externally the more graceful: the vertical lines of the narrow bush-hammered concrete columns which run from ground to roof give great elegance to the façade, as does the delicate glass and aluminium canopy which floats over the entrance. This building is 12 storeys high and, like its neighbour, is constructed with a reinforced concrete frame and pot floors. The external facing, between the bush-hammered columns and the windows, is of panels of rendering, while grey-white marble bricklets cover the whole of the plain side walls that are pierced only with a vertical pattern of small windows. The wide approach steps are also grey-white marble.

Internally, Sirti have used rubber as a finish almost everywhere possible on walls, floors, columns; fluted aluminium is used effectively on corridor walls; ceilings are specially designed for acoustics and temperature control, with layers of aluminium and fibre glass.

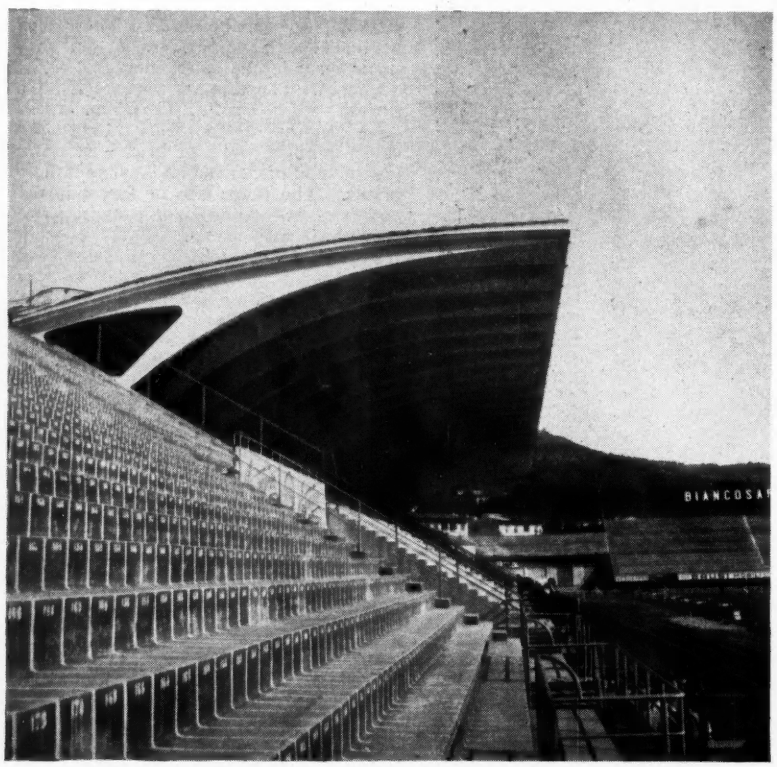
The Lazzi Garage, Florence. Designed by Inge. Riccardo Morandi.

The Lazzi garage, Florence, is designed to house and service a fleet of privately owned coaches. The main garage building is situated on one side of an open yard, with parking space and office buildings at the opposite side and at one end.

The main garage is constructed with prestressed concrete portal frames at approximately 30-ft. centres, spanning the 110-ft. width of the building. The frames carry precast longitudinal northlight roof elements. The main beams of the portals are 6 ft. deep and are formed of precast hollow box-section segments with stiffening diaphragms at intervals, joined by 5¾-in. mortar joints. The slab-shaped columns are tapered to the base and are connected by hinges to the footings, which stand on piles inclined to take the thrust of the frame. The beam segments are stressed together and to the columns with curved cables passing through the beam to be anchored in the outside end, where they cross vertical cables curving down through the columns. In order to make it possible to prestress the beam a temporary hinge had to be introduced in the frame at a point equivalent to the column head; this hinge was grouted up after the completion of prestressing.

The northlight elements consisted of a 2-in. thick V-shaped gutter unit cast in one with a sloping concrete slab, and a short bracket to the reverse slope to take the top of the glazing. The elements were precast in 30-ft. lengths to span between the frames.

The Morandi system of prestressing was used. In this system, devised by the designer of the garage, Ing. Riccardo Morandi, three 0.2-in. wires are stressed at a time, from one end, and are anchored by gripping them with a grooved steel plug fitted into a grooved steel cone. During the visit stressing was seen in progress on the supporting columns to the office building at one end of the site. This was a simple framed structure consisting of prestressed columns and beams, carrying pot floors of which the soffit was being rendered at the time of the visit. The procedure used here was interesting: five men were involved, working simultaneously. The first threw the rendering on with force; the second smoothed it roughly with a timber plank, with wide sweeping movements; the next man followed up with a second coat, put on with a float and two men finished the surface.



The Stadium, Florence. Pier Luigi Nervi, Architect.

The beautiful canopy of the grandstand of the sports stadium at Florence was designed and constructed by Pier Luigi Nervi in 1927. It is formed with cantilevered main ribs springing from a tied framework of columns, horizontal braces and inclined beams which carry the tiers of seats. The lovely sweep of the curving 60-ft. cantilever is as breathtaking now as it must have been 28 years ago, and it is interesting to note that although the cover to the steel is very thin, and even in some places non-existent, no spalling has taken place.

The visit as a whole proved extremely interesting to all members. Most particularly they were impressed with the daring and originality of design, the unshackled contemporary approach and the wide variety of finishes used. And, for both office blocks and housing, the prevalence of tall building. Italy is unhesitatingly building upwards, conserving space for the rapidly growing population and conserving never-sufficient agricultural land outside the towns. And, while earlier examples of this high building were overdensely packed, the more recent schemes have included ample open space, wide streets and gardens. Internally, finishes and fittings to workers' homes are invariably far inferior to those in this country. Nevertheless, although we have little to learn in the way of interior treatment, the approach to the exterior design and to planning generally gives us much to think on. And, at the opposite end of the scale, there was the useful reminder of the comforts and amenities possible in "luxury" housing which we, having eliminated this type of building from our scheme of things, have never had an opportunity even of trying. It was agreeable to see some construction in which cost took a very secondary place to quality.

COMPARISONS IN PRODUCTIVITY

The Building Industry's Record

SOME of the national figures on productivity, including those for the building industry and for certain sections of the building materials industry, are set out and compared with figures in other countries in an article on "Productivity Comparisons" in the April issue of *Bulletin for Industry*, a monthly review of the economic situation prepared by the Treasury's Information Division. The article, part of which is reproduced below, begins by pointing out that the hopes of higher living standards, of stable prices, and of rising exports all depend to some extent on raising output per man in this country. It continues:

PRODUCTIVITY IN THE UK

Output per man-year in the United Kingdom rose sharply in 1954. For the economy as a whole,* it was roughly 3 per cent. higher than in 1953. For industry alone,† it was 4½ per cent. higher. The increases have been as great as this in several post-war years; but they are above the post-war averages of 2½ per cent. for the economy as a whole and 3 per cent. for industry; and the post-war average for industry has in turn been above pre-war. The Economic Commission for Europe have estimated that, from 1907-24, output per man-year in British industry rose about ½ per cent. a year and that after the slump the yearly increase in the six years from 1933 to 1939 was about 2½ per cent.

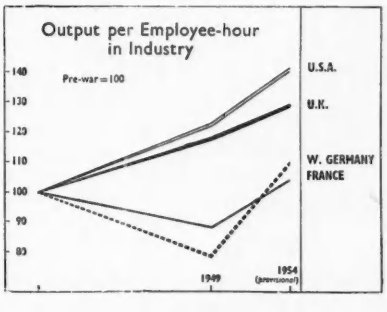
It is normal for productivity in industry to rise slightly faster than productivity in the economy as a whole. But there have, of course, been differences between manufacturing industry and other industries, and differences within manufacturing industry itself. The following table first makes some rough comparisons between manufacturing industry and other sectors, and then compares the figures for particular industry groups. (The figure for agriculture, forestry and fishing is for 1948-53 only and is based on National Income Blue Book figures.)

SOME MAIN SECTORS

	Average yearly % increase in output per man 1948-54
Agriculture, forestry and fishing	+5½
Gas, electricity and water	+3½
Manufacturing industry	+3
Mining and quarrying	+2
Building	+2

CERTAIN MANUFACTURING INDUSTRIES

4 per cent. or over	
Chemicals	+8
Manufacture of wood and cork	+6
Paper and printing	+6
Vehicles	+4½
Between 2 and 4 per cent.	
Engineering, shipbuilding, electrical goods	+4
Iron and steel	+3½
Bricks and cement	+3
Glass	+2½
2 per cent. or less	
Textiles	+2
Non-ferrous metals	+1
Clothing	+1
Food, drink and tobacco	−½



* This is a rough figure, obtained by dividing the increase in the real domestic product by the increase in the total working population.

† This figure is obtained by dividing the increase in the industrial production index by the increase in the number of those employed in the industries covered.

INTERNATIONAL COMPARISONS

It is well known that output per head in European industry is lower than in the United States. Intra-European comparisons are less well-known; recent OEEC and ECE figures have provided material on which some rough ones can be based.

On the basis of ECE figures, this was the ranking of the main countries in 1938:

Industrial output per employee.	*UK = 100*
Sweden	136
W. Germany	115
Netherlands	109
Austria	101
UK	*100*
France	97
Belgium	96
Italy	80
Finland	60

Since 1938, the UK's relative position appears to have improved considerably; according to figures given in OEEC's Sixth Report, output per employee-hour has increased more in this country than in any other European nation except, possibly, Sweden.

Since 1949, however, Germany, France, and the Netherlands have been catching up; they were damaged much more in the war, and started their post-war recovery later and from a lower level.

OUTPUT PER EMPLOYEE-HOUR IN INDUSTRY

		1949	*1953*	*1954*
USA	(1937=100)	123	137	141
UK	(1938=100)	118	126	129
Sweden	(1938=100)	118	127	n.a.
Austria*	(1937=100)	82	106	116
Germany	(1936=100)	79	104	110
Netherlands	(1938=100)	85	104	109
France	(1937=100)	88	97	105
Belgium*	(1937=100)	90	103	n.a

* Output per employee-year.

WATER CHARGES FOR BUILDING

Profit "Not Excessive"

AT A MEETING of Cuckfield RDC on March 22, the question of the scale of charges of water for building purposes was raised by MR. A. B. HAWORTH-BOOTH. Referring to a record recently made by the Engineer of the water used in the building of a bungalow, he asked whether the Council's charge of over £7 for approximately 10s. worth of water could be justified. He said that the Council were trying to encourage private building and yet were putting what amounted to a tax on it.

MR. W. B. ADAMS (chairman of the Waterworks Committee) replied that the Council were well in line with other authorities in their charges, and it could hardly be said that £7 for water for a £2,000 house was excessive. "If," said Mr. Adams, "we reduce the price of water, the builders will not reduce the prices of their houses proportionately."

*** Our report of the test (*The Builder*, March 4) stated that the test showed the total amount of water used in building the bungalow as 4,100 gallons, the cost of which, provided by meter, would have been 10s. 3d. plus a charge for fixing and hire of meter of 15s. Under the Council's scale of charges the cost was £7 10s.—ED.

Model of scheme, from north-west.

High Density Redevelopment, Park Hill, Sheffield

J. L. WOMERSLEY, ARIBA, AMTPI, CITY ARCHITECT

CYRIL SWEETT & PARTNERS, QUANTITY SURVEYORS

A SCHEME of high-density flat development, incorporating a new and interesting system of access by street decks has been designed by the city architect for the Park Hill area of Sheffield.

Park Hill, which includes the oldest outstanding slum clearance orders in the city, rises steeply from the Midland Station (190 O.D.) to Skye Edge (400 O.D.), and forms the hillside to the east of the junction of the Sheaf and Don valleys, commanding extensive views to the west and south.

The area is considered suitable for high-density multi-storey dwellings because (*a*) it is near the city centre; (*b*) it is close to, but on the leeward side of, the heavy industrial area of the Don Valley; (*c*) there are easily accessible permanent open spaces near by; (*d*) the topography of the site allows scope for planning high flats with ample light, air and magnificent views; and (*e*) a geological survey shows that the ground will take heavy loads. Taking the whole area into consideration approximately 800 dwellings will be demolished whilst some 2,000 will be built, thus providing the city with a surplus of 1,200 dwellings with which to continue the clearance of the slums. The site is divided into two parts by an area of flats erected just before the war east of Duke-street. Only the lower portion has so far been worked out in detail.

The aim is to design a modern redevelopment of an outworn area which will provide for all the various ancillary activities which grew up naturally in the old area. Provision is made for re-planning the existing district shopping street around a pedestrian precinct, adjacent to which are located a social centre and a Salvation Army citadel, the latter replacing one which is to be demolished. Rear access roads, with garages adjoining, provide for goods vehicles serving the shops, whilst parking space for shoppers' cars is planned in a lay-by off Duke-street. Within the blocks of dwellings themselves it is proposed to provide nursery schools, laundries, a police station and, to replace the eight which now exist, four public-houses on the ground floor at the ends of the blocks. A primary school already existing in the area will be modernised and extended. The existing road pattern is completely changed, only one of the many roads now crossing the site being retained. Thus the area will become largely a pedestrian precinct between the main periphery roads with minor cul-de-sac service roads leading to the entrances to the dwellings. The remainder of the ground between the buildings will be laid out as a park space with footpaths and children's play areas.

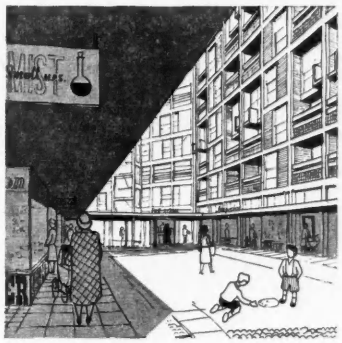
Part I consists of a plateau sloping to the north at an even gradient and to emphasise this topography the buildings are designed with a constant horizontal roof line. Thus, based on the slope of the ground, the building at the end of Talbot-street is four storeys high and, as the ground falls away to the north, further storeys are added until at the Anson-street end there are 13 storeys.

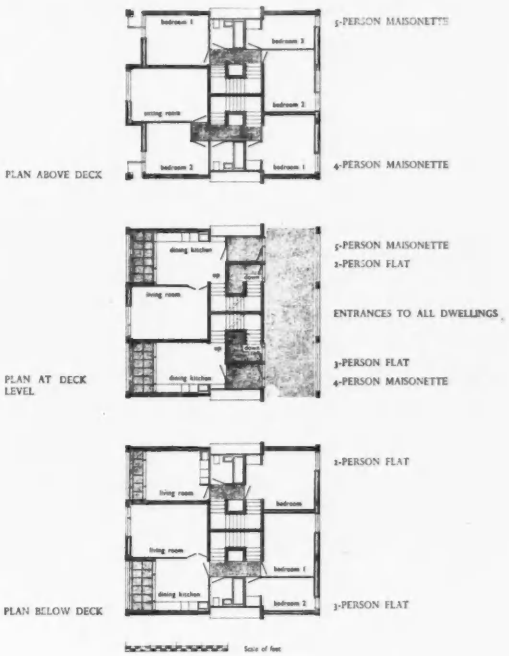
Several factors have contributed to the ultimate physical form of the development, the basic requirements of which are to provide a high density scheme, with an ample amount of open space, at an economic price. First, to ensure that all dwellings obtain as much light, air and sunshine as possible, the distances between the buildings have been carefully related to their height. Thus the open spaces become progressively larger as the height of the buildings increases towards the north. Second, the desire to achieve a satisfactory and economical standard arrangement for the junctions of the blocks resulted in the design of a system of units which, by juxtaposition, can give a 45° bend, a 90° bend and a three-way junction. These two factors have been exploited in the layout to give individual character to the various spaces as, in addition to the identity created by their differing sizes, the spaces differ also in shape,

some being framed by parallel buildings and others by buildings placed obliquely to each other. This identity will be further emphasised by individual treatment of footpaths, retaining walls and play spaces designed in relation to the varying shapes and slopes of the ground. Ground-floor dwellings are omitted at various points to give pedestrians long views whilst the covered spaces thus provided serve as sheltered play areas.

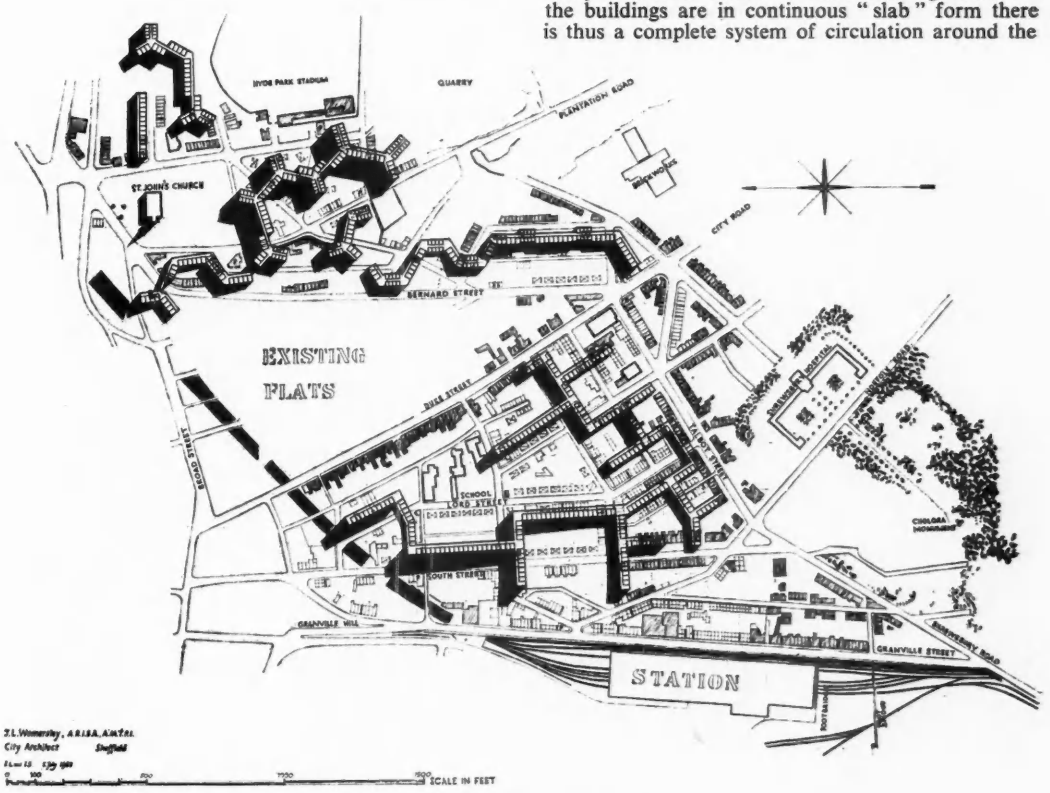
MEANS OF ACCESS

A new system of access by street decks has been designed which, it is felt, is particularly adapted to the city's topography. It is based on the fact that the most economical form of access to high flats is the normal balcony type access serving the maximum number of flats from any one lift point. In place of the 4-ft. wide balcony serving every floor, street decks 10 ft. wide, open to the air, are provided on every third floor within the main building mass. As the buildings are in continuous "slab" form there is thus a complete system of circulation around the

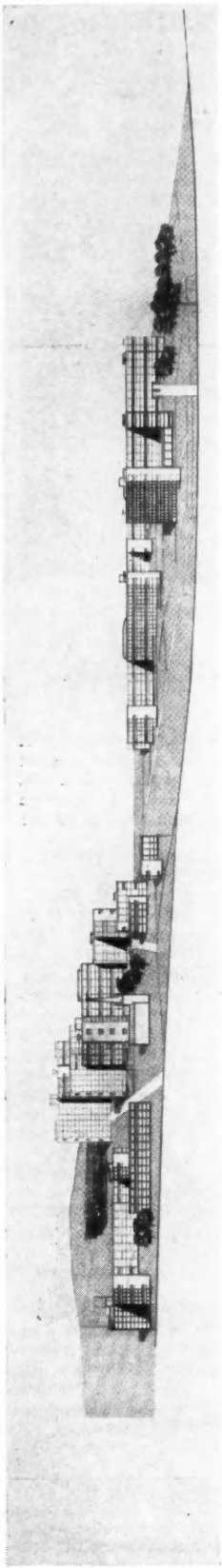




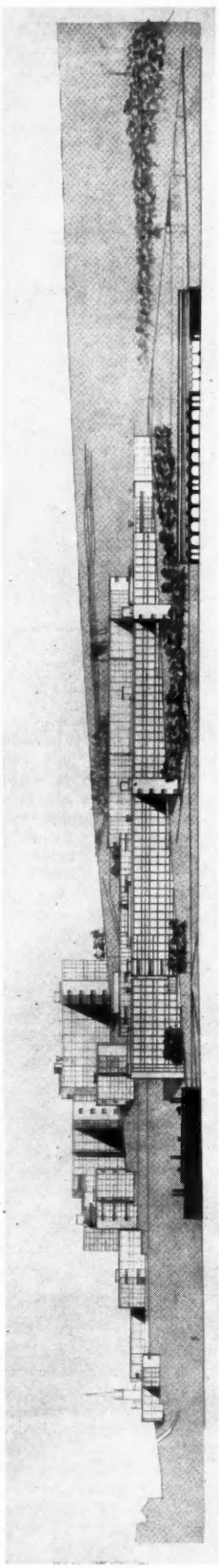
Plans of typical 3-storey unit of four dwellings.



Sketch proposals of whole scheme.



Elevation from north.



Below: Elevation from the city.

whole site, the highest deck being on the storey below the top. The decks, off which the front doors to the dwellings open, are thus much more commodious than the normal balcony and fulfil the function of "streets" within the building, along which prams can be pushed and milk trolleys wheeled. Being covered from the weather and free from vehicular traffic they form ideal places for daily social intercourse—for the conversation of adults and for small children's play. The deck can, in fact, be considered as an extension of the dwellings so far as children are concerned.

This system of access is most economical in respect of the number of lifts required. They may be spaced quite far apart, principally towards the higher ends of the buildings, and need stop only at every third floor. All passenger lifts will be capable of taking prams and at the entrance near the shopping centre a goods lift to take furniture and milk trolleys is provided. As it is proposed to use central heating neither the lifts nor the decks need be used for fuel delivery.

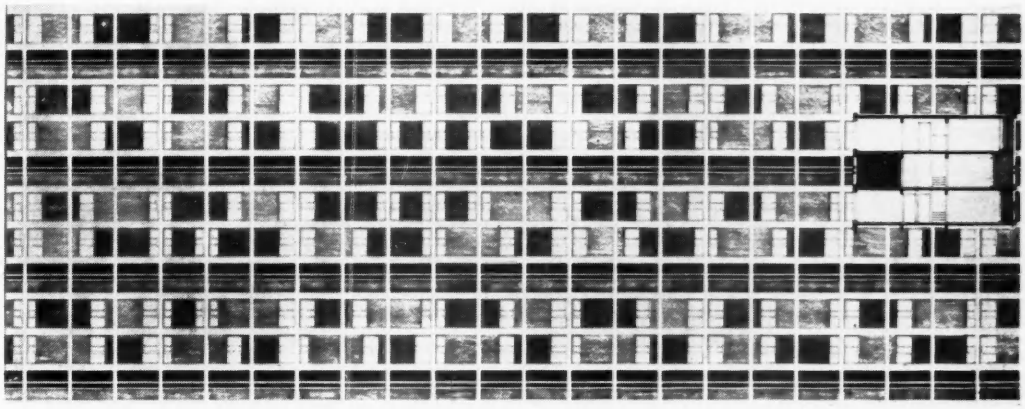
Such a system of access is eminently suited to a sloping site. The decks run out to the ground either directly or by means of ramps and it is for this reason that the buildings are continuous. The pattern of circulation within the building is closely related to that on the ground, thus bringing the inhabitants into closer communication with shops, schools and play spaces.

In designing these high dwellings an attempt has been made to provide accommodation and amenities which will be comparable with houses on the ground and which will form satisfactory homes for a wide range of families, for small children and for aged persons. The dwellings are so planned as to give each household privacy and quiet despite the essentially communal nature of the project. From the decks, front doors open into entrance halls where there is room for a pram and for cloaks. The halls and the staircases are the only parts of the dwellings which abut on the decks. Generally speaking, maisonettes occupy the remainder of the deck storey and the storey above, whereas flats, except for the entrance lobby, occupy the floor below. Sizes of dwellings vary from single-person bed-sitting room flats to six-person maisonettes. Each dwelling, irrespective of size, is provided with a large sheltered balcony where small children can play in the open air, where a pram can be put out and on which an occasional meal can be taken. Dwellings for three or more persons have dining-kitchens in addition to living rooms. Bathrooms and w.c.'s are compactly planned internally leaving the outside walls free to provide amply light, air and sun to living rooms, dining-kitchens and bedrooms. It is hoped to provide a high standard of kitchen equipment including the "Garchey" system of refuse disposal.

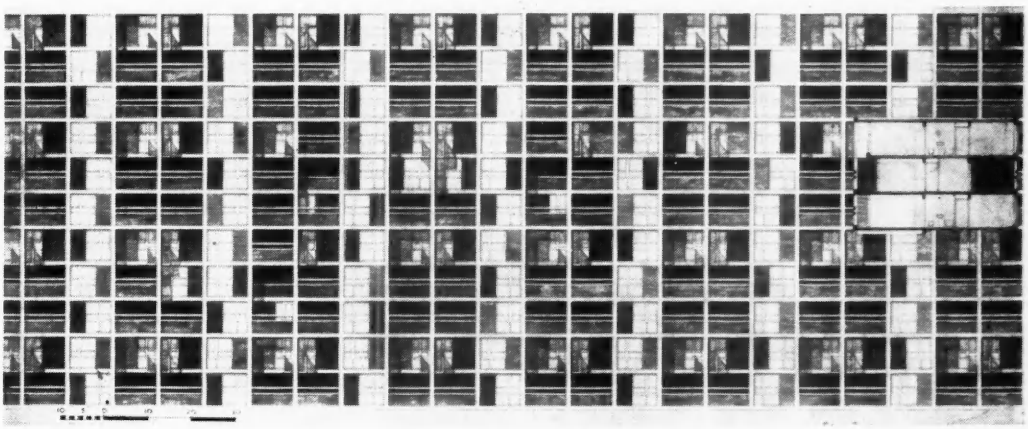
CONSTRUCTION AND EQUIPMENT

The primary economy of the scheme lies in the use of a standard repetitive structure into which the variety of dwelling types referred to have been fitted. The basic structural element is a recurrent H-shaped reinforced concrete "column," designed to resist wind pressure, which is combined with a columnar structure. The H-section houses the stairs of the dwellings whilst the central columns form the ends of the vertical ducts. Floors and roofs are of concrete, the whole structural system being suited to either precast or in-situ techniques. Except where glazed, external walls between the concrete frame are to be finished with facing bricks.

Kitchens, bathrooms and w.c.'s are planned vertically above each other so that they can be completely standardised. The standard vertical ducts behind them include drainage, Garchey refuse disposal, hot and cold water pipes and ventilation pipes from bath-

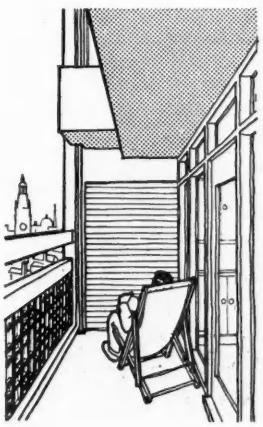


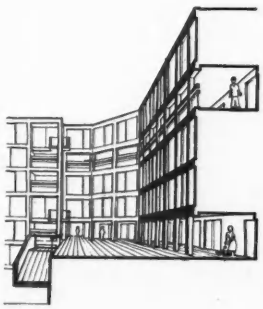
Deck façade. Below: Balcony façade.



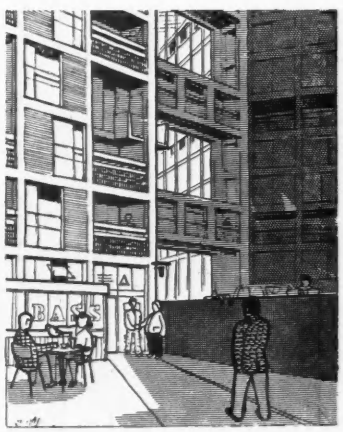
rooms and w.c.'s, the maximum amount of prefabrication of pipework being thus provided for. These vertical ducts connect at the base with a horizontal structural duct which is continuous through the lengths of the buildings and which in turn is connected to the Boiler House and Garchey Incinerator. Due regard has been paid to the position of sewers and of water, gas and electric mains in the existing streets and except for minor diversions these will remain, thus effecting a considerable financial saving as compared with the cost of providing completely new services on outlying estates.

The gross residential area, including park, is 33.21 acres, the nett residential area being 17.91 acres. There will be 502 maisonettes and 474 flats with a total of 3,581 habitable rooms. The density proposed is 108 habitable rooms per acre of the gross area and park, and 16.8 per cent. of the site will be occupied by buildings as compared with 34 per cent. prior to any demolition (1890).





HIGH DENSITY REDEVELOPMENT, SHEFFIELD



Front elevation. Below : Rear view of production unit.

FACTORY PRODUCTION UNIT AT WHYTELEAFE, SURREY

Architect
CLIVE PASCALL, FRIBA

Builders
LONDON FERRO-CONCRETE CO., LTD.

THIS building was designed to form part of a trio consisting of two production units which would balance the output of the single distillation unit. The existing pilot plant would be capable of producing distillates for the first production unit.

The clients (Givandan and Co., Ltd.) produce aromatic essences used mainly in the cosmetic industry. They required an open-type factory with a cross wall on which various chemical apparatus could be erected and charged according to the processes involved, with good high-level lighting to enable various dials and gauges to be read. The roof and structure were to be as light as possible as the whole of the building had to be carried on piles and ground beams.

There are laboratories and rooms for the chemists, lavatories, etc., in the low-level block across the front.

Construction.—To maintain a clean internal appearance free from any ledges on which dust might lie,

reinforced concrete frames of minimum size span the 50 ft. width of the factory and carry precast concrete roof units finished externally with ½-in. fibreboard and mineral surfaced built-up roofing.

The 8 ft. of aluminium patent glazing spans from the gutter unit on to the top cill of the 11-in. panel walls, built in bricks externally and darker buff sandlimes internally. The single-storey block is of similar construction except that the outer 11-in. wall is load bearing.

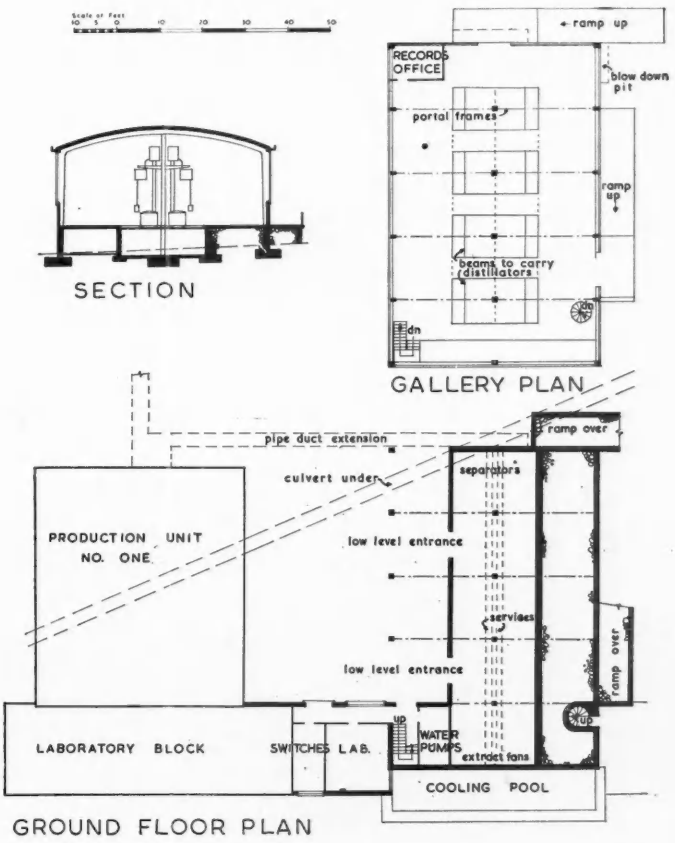
Elevational treatment.—The two parts of the building clearly express their use, the low-level being used for laboratories, charging room and lavatories, and production being carried out in the main building. The windows have glass brick surrounds to give maximum light and are framed in precast concrete surrounds.

Internal finishes.—The walls of the factory are fair-faced throughout, the concrete frames and roof units being distempered. The floor to the main area is finished in grano and laid to fall and drain into two channels on either side of the centre spine wall. The laboratory floors are finished in quarry tiling.

Services.—Heating to the laboratories is by gilled pipes coupled to the process steam circuit. The factory is fully equipped with process steam which is ducted across from the boiler house under the road together with vacuum and compressed air lines. There is also a large refrigeration plant to produce ice used for process cooling. Following is a list of sub-contractors:—

Fencing, A. J. Binns, Ltd.; patent glazing, British Patent Glazing Co., Ltd.; steel runway, Geo. W. King, Ltd.; office partitioning, Compactom, Ltd.; lighting, Kendall's; concrete copings and window surrounds, Enfield Stone Co., Ltd.; lightning conductor, W. J. Furse, & Co., Ltd.; steam boiler, Chas. P. Kinnell and Co., Ltd.; built-up roofing, Ruberoid Co., Ltd.; refrigeration plant, L. Sterne & Co., Ltd.; floor tiling, Wiggins-Sankey, Ltd.; metal windows, Wottons (Croydon), Ltd.; ironmongery, Yannedis and Co., Ltd.; piling, Franki Compressed Pile Co., Ltd.

FACTORY PRODUCTION UNIT AT WHYTELEAFE, SURREY



"The Life and Work of James Gibbs"

Reviewed by JAMES BURFORD

THIS book* is the first full and authoritative account of the life and work of James Gibbs. Its completeness and thoroughness may well make it the last. The author, Mr. Bryan Little, already well known for his appreciative historical studies and his enthusiasm for the architecture of the later Renaissance, has searched every available source of information, has examined both Gibbs' surviving works and those on which he advised, and has visited Rome for the express purpose of studying the background of Gibbs' student days.

James Gibbs was born in 1682. He was an Aberdonian Scot. His father was a merchant, his family adherents of the Roman faith and subject to those restrictions and persecutions which Protestant intolerance and Protestant policy imposed. We learn one other interesting fact. The young James Gibb (as his name then was) had "a great genius for drawing." Those are two circumstances which go some way to explain the subsequent course of events. He seems to have left Aberdeen about 1700 on a visit to the Netherlands, where, despite some social and political disabilities, he would have been far freer than in Scotland to practise his religion. Exactly when he came to Rome we do not know, but in October, 1703, with the avowed intention of serving in the Catholic Mission to his native country, he is entered at the Pontifical Scots College in Via Quattro Fontane.

DISILLUSIONMENT

Had all gone well Scotland might have gained an able missioner and architecture might have lost a distinguished practitioner. But all did not go well. Two successive Italian Rectors of the College failed to understand the peculiarities of their, to them, foreign students—"there have been differences in the College which have made a great noise." And then, in the time of Rector Naselli, "poor Mr. Gib, who came in last, is so terrified with his rudeness that he cant resolve to take the oath. He should have taken it months ago, but the Rector did not tender it to him, and he had seen such broils since that he wont under go it." "Poor Mr. Gib" was not alone; by 1705 the students were down to three. James Gibbs had had a disillusioning experience. How complete had been his desire for priesthood we do not know. That early reference to his "great genius for drawing" suggests there were tendencies pulling in another way. But, his College days behind him, his future course was not yet clear. He was in Rome and, we learn from a letter, he "resolves to stay some while here and apply himself to painting, seeming to have a genius for that imployment."

Just when he decided to turn his full attention to the study of architecture is uncertain. His time in the Papal city coincided with the end of a period of great artistic vitality and exuberance. It had been the period which saw the great works of Maderna, Girolamo, Rainaldi, Borromini and of the towering figure of Lorenzo Bernini.

The two Italians chiefly connected with Gibbs' architectural training were Carlo Fontana and Pietro Garroli. Garroli seems to have been a theoretical instructor rather than a practitioner. Fontana, much concerned with constructional problems, had been appointed *Capo Architetto* to St. Peter's itself.

Such was Gibbs' training and the exciting atmosphere of the time and place. He travelled, visited Genoa and Naples, and significantly observes that the Neapolitan architecture was not to his liking. Ill news from home brought him back to England in the winter of 1708-9. His training and foreign study were at an end.

James Gibbs was now 26 or 27 years of age. What kind of a man was it who then set up for himsef in London as a practising architect? We learn that he was ambitious and determined, as a young man good-looking, a good companion, very much a man's man—he remained a bachelor—anxious, almost to the point of blatancy, to take advantage of patronage. He was technically competent, thorough, conscientious, fair to those he worked with, an eye for the money but generous where charitable institutions were concerned. He was singularly reticent on his own affairs, perhaps the result of early experience. His faith and his politics were his own. He did not allow them, as far as that was possible, to interfere with his career. In middle life he ostensibly joined the Anglican Church. But his faith and his politics were known. He was, on the whole, restricted to Tory and Jacobite patronage; he was unlikely to be employed on State projects under a Whig Government. But Tory and Jacobite patronage kept him well employed. He became one of the leading practitioners of his day, a lead he maintained until his retirement in his 70th year. He died in 1754.

ARTISTIC ACHIEVEMENTS

That is a brief outline of the facts. Mr. Little's book very ably fills in all the details. No one is likely to wish to differ, or to be in a position to differ, from such thorough scholarship. But in assessment of Gibbs's artistic achievement there may be room for some fluctuation of opinion. It is just possible that Mr. Little, in his enthusiasm, has assumed for Gibbs endowments which that architect would not himself have claimed.

Gibbs was trained in the Baroque school. The principal formative influences were the superb architectural achievements in Italy of the five or six decades previous to his stay in Rome. How far had he absorbed the difficult lesson which they had to teach? The Baroque had never made the appeal in Protestant England which it made abroad. Gibbs was obliged to adapt his style to the prevailing demand for something simpler, more direct, more Palladian. Perhaps, one suspects, it was as well for him that this demand was put upon him. Had it been otherwise some other candidate for honours might have stepped ahead of him. Impressive as the body of Gibbs's work may be it is doubtful whether, by temperament and origin, he was of the stuff of which an artist of the Baroque could have been made. Could he have competed, given the opportunity, with two of his contemporaries in Fontana's school, Johann von Hildebrandt and Fischer von Erlach? His work scarcely suggests it. One of Gibbs's earliest buildings, the charming and fortunately preserved Church of St. Mary-le-Strand, is in flavour his most Baroque achievement. But it seems a flavour derived from a recent reminiscence rather than from a quality inherent in a principle of design. It owes much to Cortona's Roman Church of Santa Maria della Pace. Mr. Little gives illustrations of the two churches side by side. The comparison is instructive.

THE BAROQUE APPROACH

Baroque architecture is logical as an aesthetic construction even when it most neglects the logic of material construction. Baroque designers realised that for certain purposes in architecture fact counted for everything, and that, in certain others, appearance counted for everything. They did not insist that necessary fact should itself produce the necessary appearance. By considering the two questions separately it became possible to enlarge the scope of architecture to meet the increased demands of a more varied civilisation. The architects of the Baroque had a definite purpose in view and that purpose was exact though it required an "inexact" architecture for its fulfilment. They wished to communicate, through architecture, a sense of exultant vigour and overflowing strength. An unequalled knowledge of the aesthetics of architectural design determined the means which they adopted. Busied with an experiment of taste and refusing all extraneous sanctions, designers of the Baroque felt the embarrassment of liberty. Having denied the absolute authority of use and construction they were led to create a new authority in design itself. Under such conditions an academic tradition becomes a positive force. Designers deviated from the canon when their instinctive taste prompted them to do so; they returned to the canon whenever they felt their creative experiment had over-reached its profitable bounds.

That was not James Gibbs's approach to architectural creation. He kept, upon the whole, well within the clearer path of Palladian authority. Only in his smaller works, his monuments and garden furniture, did he permit himself a greater liberty. None the less he remains, within these limits, as Mr. Little has so admirably recorded, one of the great and outstanding exponents of architecture in a great period of the Renaissance in England. His many happily surviving works stand to prove his worth.

* The Life and Work of James Gibbs, 1682-1754. By Bryan Little. (London: B. T. Batsford, Ltd.). Price 25s.

News of the Week

RA EXHIBITION

THE Summer Exhibition of the Royal Academy will open on Saturday, April 30.

"ARCHITECT'S LIBEL WRIT"

IN a reference in our issue of April 1 to an impending action for libel brought by Lt.-Col. A. E. Henson, president of the Incorporated Association of Architects and Surveyors, against Major G. B. J. Athoe, it was stated that "Major Athoe was, for 25 years until he resigned in 1952, Secretary of the Association." We are informed, on the Association's behalf, that the statement quoted was incorrect, and that notice to terminate Major Athoe's agreement of service was given by the Association.

THE BARBICAN SITE

IN the BBC Third Programme's next "Prospect" talk—the monthly series on current architectural and town planning questions—Mr. Colin Boyne, editor of "The Architects' Journal," will discuss the three proposals which have been put forward for the rebuilding of the Barbican Site in the City of London. This talk will be broadcast on Monday, April 25, at 9.55 p.m., and repeated on Friday, April 29, at 11.10 p.m

MOVE TO NEW HEADQUARTERS

THE OFFICES of the Faculty of Architects and Surveyors will be moved to new and permanent headquarters at 68, Gloucester-place, London, W1 (tel.: Welbeck 9966), on Monday next, April 25.

PROFESSIONAL ANNOUNCEMENTS

MESSRS. E. R. COLLISTER & ASSOCIATES, chartered architects and industrial consulting engineers, have changed their London address from Gloucester House, 19, Charing Cross-rd., WC2, to 70, Victoria-st., SW1 (tel.: Victoria 4957).

MESSRS. SYMINGTON, PRINCE & PIKE (Mr. W. J. Prince, FRIBA, and Mr. M. W. Pike, FRIBA), of de Montfort House, de Montfort-sq., Leicester, have taken into partnership MR. L. C. CANDLISH, DipArch (Leics.), ARIBA, as from December 6 last. The style of the firm will remain unchanged.

MESSRS. JOHN MCBAIN & PARTNERS, quantity surveyors, of 25, Ludgate-hill, London, EC4, have opened a branch office at 2-4, Upper Dagnall-st., St. Albans, Herts., and would be pleased to receive trade catalogues at this address.

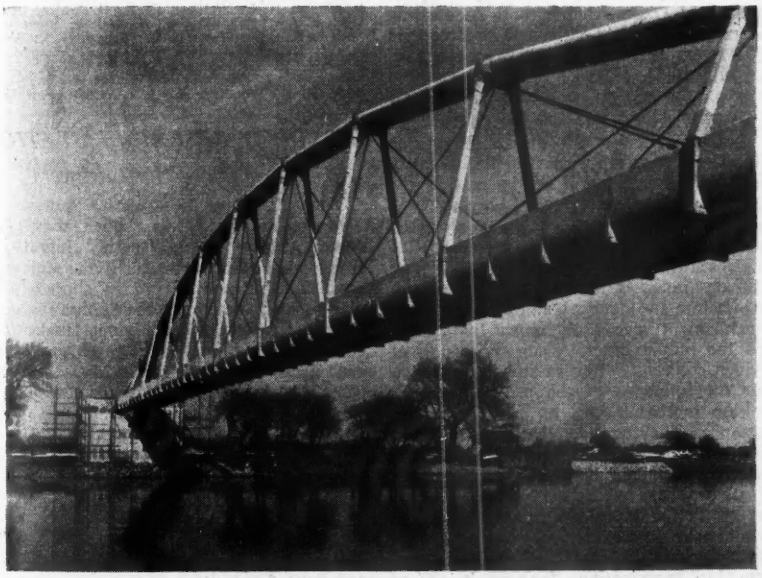
MR. GRAHAM POUND, OBE, BSc, MICE, MTPI, who has recently retired from the position of Senior Planning Officer in the Ministry of Housing and Local Government, is starting practice as a planning consultant at Compton House, 28c, Devonshire-st., London, W1 (tel.: Welbeck 5039).

MR. ROBERT STEVENS, ARICS, chartered quantity surveyor, has opened a new office at Aldwych House, London, WC2.

FROM "THE BUILDER" OF 1855

Saturday, April 21, 1855

SURVEYOR TO THE ORPHAN WORKING-SCHOOL.—We are informed that 64 applications were made for this appointment. The election took place on Wednesday last, by the Board of the General Committee, when Messrs Wehnert and Ashdown were chosen. The salary is £50 per annum, and the same fees on all new buildings as paid to the district surveyor. The estates are at Haverstock-hill and in the City-road.



A PRESTRESSED CONCRETE PIPE BRIDGE.—A general view of the new prestressed concrete pipe bridge at Gunthorpe, near Nottingham, which has been built to carry water mains across the River Trent. The design was largely determined by the need not to obstruct river traffic during construction, and the bridge had to be sufficiently light to be built on the bank and then launched across the river. An open web bowstring design was accordingly decided upon, which had the added advantage of good appearance. The bridge was built for the Water Department of the City of Nottingham, and the City Engineer, Mr. R. M. Finch, OBE, MICE, undertook the supervision of the work for the Water Engineer, Mr. B. W. Davies, MICE, MIMech.E, MIWE. The design was by the Prestressed Concrete Co., Ltd.; Crowley, Russell and Co., Ltd., were the main contractors; the Croft Granite Co., Ltd., were sub-contractors for the precast concrete; and the Franki Piling Co., Ltd., drove the piles. Ultrasonic testing was by the Cement and Concrete Association.

RIBA

Notes from Council Minutes

THE following notes are taken from the minutes of the RIBA Council meeting held on April 5:

APPOINTMENTS

(a) *Ministry of Housing and Local Government Housing Medals: Chairman of Awards Committee for Region No. 2—East and West Ridings*: A. Newton Thorpe (F) in place of Noel Pyman (F).

(b) *Ministry of Works Building and Civil Engineering Regional Joint Committee for Region No. 12 South Eastern: RIBA Representative*: H. Edgar Bunce (F) in place of G. Gregor Grant (F).

(c) *RIBA Representatives on Codes of Practice Committees*: Revision of Code 151.101 Wooden Doors, G. Newell (A); New Code for Steel and Aluminium Corrugated Sheet Metal Roofing, C. W. Hutton (F); Committee to decide whether a Code on Weather Protection should be drafted, D. W. Aldred (F); Code on External Rendering (General Building Series), F. W. Heaven (A); Committee to decide whether a Code on Flues for Larger Appliances in Buildings should be drafted, G. M. Kingsford (F); Code on Sound Insulation, A. W. C. Barr (A); Code on Functional Requirements for Buildings—Chapters on Daylight, Sunlight and Artificial Light, O. Campbell-Jones (F); Revision of Code on Slating and Tiling, including Sub-Code on Random Slating, C. M. Vine (A).

(d) *RIBA Representatives on BSI Committees*: Sub-Committee to consider the preparation of a British Standard for cladding units for upper floors of buildings, G. Newell (A) and R. T. Walters (A); Conference to consider British Standard for pitch fibre drain pipes, E. H. Sadler (A); TIB/9 Wood Blocks for Floors, Kenneth Twist (A); WPC/2 Classification of Wood Preservatives, ditto; WPC/2/1 Classification of Wood Preservatives (drafting), ditto; LBC/18 Laboratory Furniture and Fittings, J. T. Redpath (A); B/61 Architectural and Building Drawing Office Practice, Lister P. Rees (A) in place of E. D. Mills (F); B/75 Modular Co-ordination, Lister P. Rees (A); HIB/3 Cast Iron Building Fittings, Lister P. Rees (A) in place of E. D. Mills (F); HIB/7 Cisterns, Tanks and Cylinders, Lister P. Rees (A) in place of E. D. Mills (F); HIB/11 Wall Tiles, Lister P. Rees (A) in place of E. D. Mills (F); HIB/12/3 Metal Windows for Agricultural Purposes, Lister P. Rees (A); HIB/15 Pressed Steel Galvanised Rainwater Goods, Lister P. Rees (A) in place of E. D. Mills (F); HIB/17 Sundry Fittings for Building Purposes-Fixings, ditto; HIB/20 Non-Ferrous Rainwater Goods, ditto; MEE/47 Cast Pipe Fittings, ditto; NFE/22/1 Lead Sheet and Strip for Building Purposes, ditto; NFE/22/2 Lead Pipes and Fittings, ditto; SAB/2 Water Fittings, ditto; SAB/4 Waste Fittings for Sanitary Appliances, ditto; MEE/104 Identification of Pipe Lines, Cables, Conduits, etc., John Kemp (A) in place of E. D. Mills (F); HIB/3 Cast Iron Building Fittings, H. H. Clark (F) in place of E. D. Mills (F).

Honours: The congratulations of the Council were sent to the Earl of Crawford and Balcarres (Hon. F) and to Lord Bilsland (Hon. A) on their appointment as Knights

of the Thistle; and to Mr. David Mills (A) (Kenya) on the award of the Order of the British Empire.

Completion of Premises Fund: Bequest: The Secretary reported that under the will of the late Mr. A. E. Harvey (F) his estate would pass to the RIBA for the Completion of Premises Fund on the termination of a life interest set up under the will.

Village Halls: The President wrote to the Minister of Education in regard to the building of village halls with the aid of subsidies to be provided by the Government, and drew attention to the importance of good design and quality. He asked the Minister to consider the advantages of employing qualified architects for this work.

The following reply has been received from the Minister and is published with his consent:—

"I have been looking into the problem of village hall design which you mention in your letter of February 7.

"I quite agree with you that we should all strive to ensure that the villages achieve good standards of design, and that this is more likely to be achieved if qualified architects are employed. Sound advice in the early stages of the preparation of a scheme is also important, and I am glad to know that something is being done to provide this. The National Council of Social Service, with whom the Ministry co-operate very closely in dealing with village halls, issued two pamphlets last year, one on the site and building and the other on the interior. They are also issuing a revised version of their 'Notes of Construction' which have been brought up to date. The Ministry's architects can help, too, since arrangements have been made for them to see plans at an earlier stage than was often possible in the past. Finally, all applications are sent to the Ministry through Local Education Authorities, and I hope that they will do their best to assist the local Village Hall Committees to achieve good standards."

Council of Industrial Design: The Secretary reported that the following architects had been co-opted as members of the Council of Industrial Design: J. M. Richards (A), R. Y. Goodden (A) and Mischa Black.

Council Elections: Circulation of Biographical Information about Candidates: It was agreed that in future biographical details of candidates for Council elections should be printed separately for circulation with the voting papers so as to be easily available to members when filling in their voting papers. The particulars will not therefore in future be published in the RIBA Journal.

EXHIBITIONS

On the recommendation of the Public Relations Committee, the Council approved of the following exhibitions being prepared:

(a) *Drawings of the late Cyril Farey (F)*: To be shown in the Members' Room for a period in the autumn. The dates have yet to be fixed.

(b) *Ministry of Works Exhibition on Architectural Methods applied to the Preservation of Ancient Monuments and Historic Buildings*: This exhibition will be prepared by the Ministry of Works and will deal with the special problems which arise and the techniques evolved by the Ministry's architects. It will be arranged jointly with the RIBA and will be shown at the RIBA for a fortnight during December, 1955.

(c) *British Electricity Authority's Exhibition on Pulverised Fuel Ash Building Products*: An exhibition to illustrate architectural aspects of the utilisation of waste products from power stations in the form of building materials will be shown at the RIBA for a period in October, 1955. The exhibition is being prepared by the British Electricity Authority in consultation with the RIBA and the Building Research Station.

Grants and Subscriptions for 1955: The following list of grants and subscriptions was approved:

	£	s.	d.
British School at Rome	750	0	0
Architects' Benevolent Society	150	0	0
Architectural Association Lantern Slide Collection	100	0	0
British School of Archæology at Athens	50	0	0
Council for the Preservation of Rural England	50	0	0
Students' Easter Visit to Rome	50	0	0
British Standards Institution	31	10	0
Parliamentary and Scientific Committee	26	5	0
National Trust for England, Wales and Northern Ireland	25	0	0
National Smoke Abatement Society	12	12	0
Association for the Preservation of Rural Scotland	10	10	0
Council for the Preservation of Rural Wales	10	10	0
RIBA Cricket Club	10	10	0
RIBA Library Group	10	0	0
National Trust for Scotland	5	5	0
Ulster Society for the Preservation of the Countryside	5	5	0
International Federation for Housing and Town Planning	5	0	0
British School at Rome, Faculty of Archæology	3	3	0
National Art-Collections Fund	3	3	0

British Architects' Conference, 1957: The Council accepted the invitation of the Berks, Bucks and Oxon Architectural Association to hold the British Architects' Conference in 1957 at Oxford. The dates have been fixed for July 10-13, 1957.

Proposed London Society of Private Practising Architects: A proposal to form a London Society of Private Practising Architects was reported to the Council. After full consideration of the matter, the Council decided that such a proposal was to be deprecated. The view was expressed that the profession must be regarded as a single entity composed of members whose ultimate interests in the advancement of architecture are identical, and that any move which might give Government authorities and the public generally an impression of divided counsels is unwise and likely to impair the influence of the profession when making representations on matters of importance. They consider that the RIBA and the Allied Societies provide adequate machinery for the discussion and solution of all problems which may arise, and they deplore the tendency of a minority of members to take up membership of other bodies, especially those which require no qualification by examination for admission to membership. [See Note, page 658.]

Professional Practice Results

THE Examination in Professional Practice and Practical Experience was held in London and Edinburgh on March 31 and April 1, 1955. Of the 252 candidates examined, 214 passed and 38 were relegated. The successful candidates are as follows:—

E. H. Abbott, L. S. Addleson, C. W. Alexander, R. R. Allen, J. H. G. Archer, A. W. Arrow, R. A. Ashdown, T. A. Austin, T. F. Axon, S. F. Baldwin, T. W. Ball, R. L. Barclay, Geoffrey Barden, D. P. Bell, J. L. Belle, A. E. S. Bemant, A. G. Bentley, Peter Benwell, E. C. Best, Douglas Black, Miss B. L. Bolin, Sydney Bolland, D. G. Borton, K. F. Boulting, B. E. Bouskill, A. S. E. Bradley, P. J. D. Bradshaw, D. S. Briggs, D. S. Bristow, F. J. Brown, R. K. Brzezinski, Lucjan Buchwald, C. H. Burford, John Burke.

H. R. Caddy, C. W. Caffrey, Paul Castle, S. J. Clapham, J. H. F. Coffin, J. D. Cole, J. F. Connaughton, G. B. Constable, A. G. Cooke, Neville Cooley, L. N. Cordingley, J. R. Coward, C. P. Crawforth, D. W. Cross, H. E. L. Davis, G. S. Dawes, S. S. Dixon, George Djurkovic, Mrs. D. C. Dove, E. G. Dukes, John Dyas, G. T. Edge, J. H. Edleston, W. J. Elkerton, J. A. Elliott, N. W. Engleback, D. K. Entwistle, C. D. Exley, J. A. Fehily, Mrs. R. S. Fleck, N. M. Fleming, W. A. Fletcher, J. E. C. Forsyth, G. H. Foster, Donald Fraser.

J. T. Gardner, Raymond Gent, G. R. George, J. V. Gibberd, B. A. Gilonis, Thomas Glass, M. G. Godwin, R. C. Graham, A. W. McK. Grant-Nelson, J. R. H. Grinstead, G. D. Hall, J. B. Hall, H. S. Hallam, J. A. Hardy, C. L. Headings, R. B. Hellard, W. S. Hendry, D. A. Hews, D. M. Hickley, C. Hickling, A. D. V. Hickman, M.G. Hicks, R. W. C. Hoare, C. L. Holmes, N. S. Hubbard, D. J. Humphries, C. A. T. Huntley, Rex Huntley, P. L. James, D. W. Jeffries, W. H. Jellema, D. H. Jenkins, R. C. Jolliffe, A. E. Johnson, T. J. Johnston, G. Graham Jones.

Anthony Kemp, P. J. Kendrick, R. A. G. Kennett, D. J. Kershaw, R. S. Khambatta, R. J. King, Jan Kot, S. M. Kowalski, W. E. Larkin, B. A. Leech, Derrick Lees, D. R. Lewis, Patrick Litchfield, B. J. Lloyd, S. H. Longson, S. J. Luckman, L. F. Lumb, F. A. A. Mackenzie, William Mackintosh, E. A. McOnegal, A. R. Males, Gilbert Mellers, B. N. Meredith, C. S. Minchell, R. D. Mirrington, R. M. Molesworth, J. M. Moore, A. K. W. Morgan, N. O. Morhaim, F. C. M. Morris, A. F. Moyes, A. C. Murray, K. A. Neivens, Kenneth Newton, Gerald Norwood.

M. C. Ouseley, J. R. B. Palmer, K. H. Panter, R. G. Parry, Harry Parsons, Roy Payne, A. D. Penhey, M. D. Prendergast, J. G. R. Pring, J. D. Proctor, J. L. Pujdak, L. V. Raynor, A. M. Read, R. W. Read, E. J. Redstone, M. K. Reeves, Alan Reid, J. D. Richards, L. H. A. Ringrose, R. A. Roberts, J. T. Roberts, P. W. Robinson, C. E. Rolf, A. J. Russell, D. P. Saunders, J. B. Sharpe, K. Sierakowski, W. G. Silvester, J. M. Simmonds, R. D. Sinclair, Miss Margaret Skelton, D. N. Skinner, John Small, Colin Smith, W. G. J. Sowersby, Dennis Speller, Alan Spencer, D. W. Stonelake, E. E. Sutcliffe, Victor Swann.

D. R. Tapp, J. T. R. Taylor, Mrs. M. E. Thaxton, A. R. Thomas, C. H. G. Tims, B. A. Topolski, W. C. Trigg, P. N. K. Turkson, M. J. Turland, Frank Turner, J. J. Turner, M. W. Turner, A. L. Vasbenter, N. E. Walford, F. H. H. Walker, R. E. Walker, A. J. Walmsley, E. S. Walton, Brian Warburton, P. J. W. Ware, L. E. Watson, H. L. Webb, A. H. R. Weitzel, Alan West-Jones, Miss M. L. Whitton, H. L. Wickham, G. W. Wilkie, C. R. Wilson, N. T. Wilson, Peter Winder, G. N. Woodcock, R. R. Worskett, K. C. J. Wright, Pow Veng Yap.

BUILDING RESEARCH STATION

"Open Days" for Engineers

THE BUILDING RESEARCH STATION is arranging to hold two "open days" on Monday, July 18, and Tuesday, July 19, at which work of interest to civil and structural engineers will be displayed. Visitors will be able to see a number of the Station's laboratories and work being done under the current programme of research, to study special displays of the results of the Station's work, and to meet the staff.

The work displayed will be limited to the engineering work of the Station, but it is hoped that, in future years, other parts of the Station's work will be on view.

BOOKS RECEIVED

ELEMENTARY QUANTITY SURVEYING. By Sidney Ralphs. (London: Sir Isaac Pitman and Sons, Ltd.) Price 25s.

AN EXAMPLE OF QUANTITY SURVEYING. By Arthur J. Willis. (London: Crosby Lockwood and Son, Ltd.) Price 20s.

PRECAST CONCRETE. By Dr. Kurt Billig. (London: Macmillan and Co., Ltd.) Price 32s.

THE TOWN AND COUNTRY PLANNING ACT, 1954. By D. P. Kerrigan and J. D. James. (London: Butterworth and Co. (Publishers), Ltd.) Price 28s. 6d. post free.

SMALL SEWAGE WORKS. By F. C. Temple. (London: The Technical Press, Ltd.) Price 9s. 6d.

TOWARDS HIGHER PRODUCTIVITY

3.—*Prefabricated Concrete Structures in Eastern Europe*

By R. ROSNER, ARIBA, AMTPI

CURRENT expansion of production in all technically advanced countries seems to support the view that steel is likely to remain a precious metal for some time ahead. This trend, and its importance to the building industry, is fully recognised in the Soviet Union and all countries within her orbit of influence; the production of prefabricated reinforced concrete units for every type of building can now be regarded as an important factor in the national economy of these countries.

Development during recent years and future plans were described in *Pravda* of August 20 last. The article was severely critical not only of widespread and wasteful use of steel frame construction in the Soviet Union, but also of inadequate production of prefabricated concrete units and lagging basic research and standardisation. As a result, the Council of Ministers has laid down further statutory orders: during 1955 and 1956 402 covered and 200 outdoor plants are to be built for a total output of 2,844,000m.³ of precast units in 1955 and 4,855,000m.³ in 1956. This is distributed as follows:—

	Housing (in 1000m²)	Industrial Buildings (in 1000m²)	Agricultural Buildings (in 1000m²)
1955	5,300	2,817	3,230
1956	9,270	3,767	5,170

The total national output of precast concrete units is to be increased substantially during the next three years:

1954	1955	1956	1957
1,860,000m³	3,515,000m³	6,085,000m³	9,790,000m³

This includes the following structural elements for industrial purposes: Stanchions, beams, reinforced floor units of aerated concrete, rails for overhead conveyors, foundations and units for bridges, station platforms and pylons for high-tension cables; for housing—stanchions, beams, hollow floor planks, light-weight floor units, wall units, stairs, landings, cills and foundations; for agriculture: silos and hot houses. Specifications and reference books outlining structural elements and details of assembly based on national standards are being prepared and the widespread use of precast concrete construction is to be popularised through the medium of the Press and films.

INDUSTRY

Much attention is being given to industrial structures. (Figs. 1, 2 and 3.*) During 1954 three one-storey types of buildings were developed with spans from 18m to 24m and distances between centres of columns of 6m; they are of standardised height and equipped with overhead conveyors capable of carrying loads of up to 30 tons. Steel trusses were only used for spans of more than 15m. In 1955 four- and five-storey buildings for administrative and light industrial uses will be developed with a basic module of 6 ft.

AGRICULTURE

In the Ukraine three types of precast reinforced concrete truss units (Fig. 4) have been developed which will facilitate the introduction of advanced methods of construction into rural building. The first type is used for machine-tractor stations with a span of 10m, the second one for

FIG. 1.

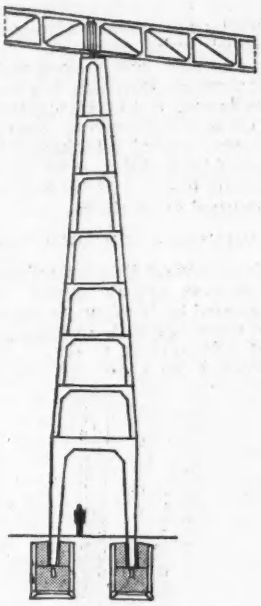


FIG. 2.

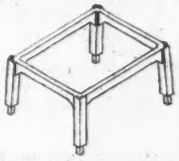


FIG. 3.

Fig. 1.—Prefabricated concrete conveyor for power stations. Length: 520 ft., maximum height: 105 ft. Fig. 2.—Supporting pylon, built with standardised precast trestles. Fig. 3.—Typical precast trestle for prefabricated concrete conveyor for power stations.

Fig. 4.—Truss units I, II and III. Fig. 5.—Assembled trusses for rural buildings: (I) *Sheds for farm machinery;* (II) *stable or shed for combine harvester;* (III) *tractor shed;* (IV) *grain store;* (V) *shed for agricultural machinery;* (VI) *cow shed (two rows).*

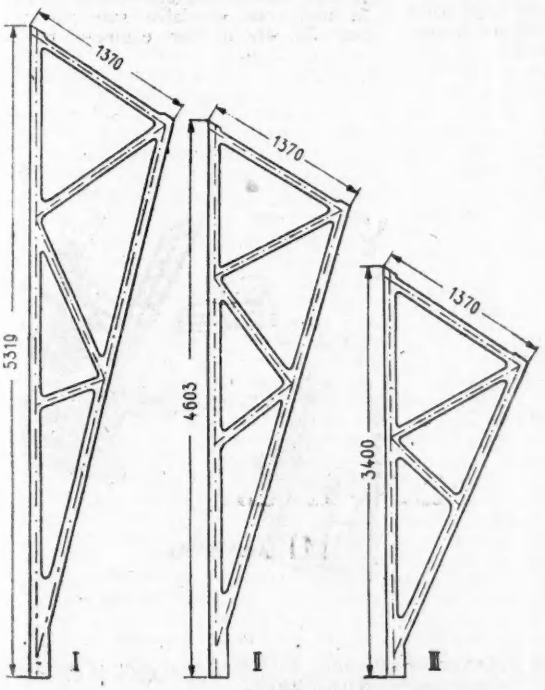


FIG. 4.

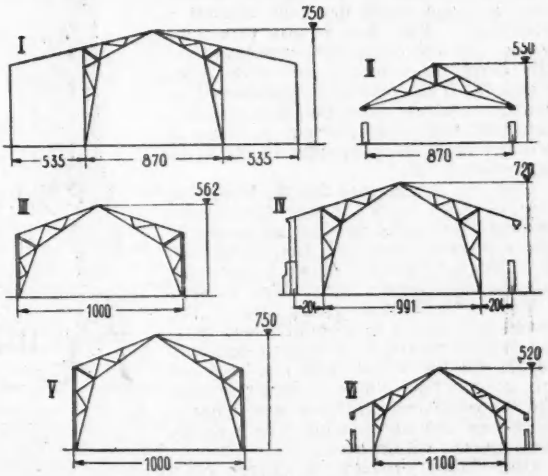


FIG. 5.

the trusses of stores and sheds and the third for vertical supports. Type I weighs 9 cwt. and Type III 5 cwt. Metal or timber shuttering is used for the casting of the units on the site. These are either welded or bolted together; autocranes tilt up the assembled trusses and set them on precast concrete foundations. The various types of trusses (Fig. 5) are spaced at distances from 3.5m to 4.8m and held together by horizontal and diagonal ties. The panel walls consist of perforated blocks and roofs are covered with corrugated asbestos. Provision has been made for insulation, if this is required. One team of four operatives, aided by two autocranes, erected a building 48m. long in seven 8-hour shifts. The construction of a second building 54.5m. long could be accomplished in six shifts.

HOUSING—PRODUCTION

Each of several Russian factories, now in production, has an annual output of prefabricated units adequate for the erection of dwellings with an aggregate floor area of 3,850,000 sq. ft. (i.e., 7,700 dwellings with a floor area of 500 sq. ft.).

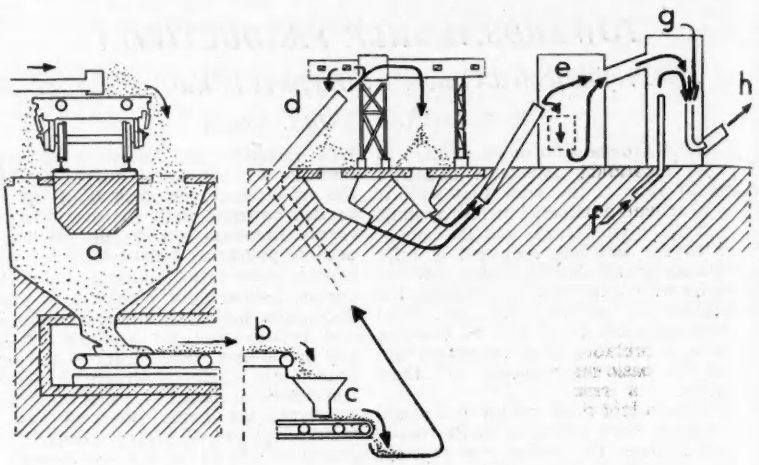


Fig. 6.—THE PLANT FOR PRECAST UNITS: (a) *Cement, sand and coarse aggregates;* (b) *belt conveyor;* (c) *transfer of materials;* (d) *silo;* (e) *pre-heater;* (f) *addition of cement;* (g) *addition of water*; (*h*) *concrete.*

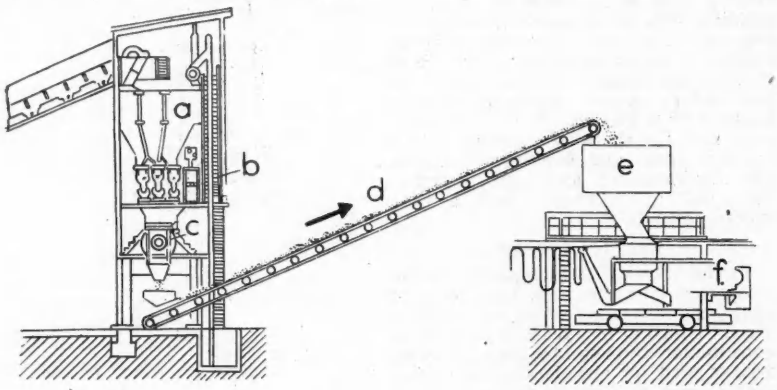


Fig. 7.—THE PLANT FOR PRECAST UNITS: *Mixing plant:* (a) *storage;* (b) *weigh-batch plant;* (c) *concrete mixing plant;* (d) *transfer of concrete;* (e) *silo;* (f) *filling of forms.*

Every day nearly 1,000 tons of raw materials are used. After its arrival at the factory, cement is pumped at the hourly rate of 25 tons into storage silos. Sand and aggregates are shifted by belt conveyors to tips. From tips and silos the various materials are transported to the weigh-batch plant. During the winter, sand and aggregates first pass through a pre-heater. The plant is also producing mortar for the facing tiles which eventually cover the external wall units (Figs. 6 and 7). The concrete is transported by conveyors to the main building, which is equipped with four production lines. A product requires 15 minutes to reach the drying chambers.

One line is equipped for the manufacture of floor units. Large steel forms mounted on trucks are first mechanically cleaned and greased and then move onto a turntable which, slowly revolving, stresses high tensile wires fixed to steel dowels at the bottom of the forms. The trucks then move to a point where placing funnels served by overhead belt conveyors fill the forms with the required mix of concrete, which is then vibrated. The consolidated products now enter a three-stage drying chamber where curing is completed within hours.

One skilled operator in charge of a switchboard controls this highly mechanised process. He supervises the mixing of the concrete and its transport to the trucks. Various light signals indicate the progress of the various products; any mechanical failure is immediately recorded. Light signals also enable the operative to co-ordinate his work across a distance of 500 ft. with a crane driver who carts and stacks the finished units at the far end of the drying chamber.

ASSEMBLY

(*i*) *Moscow.*—Large-scale assembly of prefabricated units began here in 1939. At the time the erection of multi-storey buildings took an average of eight to ten months. At present a well-equipped block of flats of seven to eight storeys high (approx. 6000m.²) can be completed in seven months. The site management calls in numerous specialist sub-contractors; one of whom, for example, provides

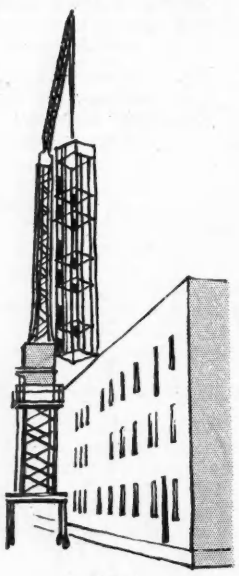


FIG. 8.

FIG. 9.

Fig. 8.—*The placing of a prefabricated lift shaft. Fig.* 9.—*The placing of prefabricated concrete foundations.*

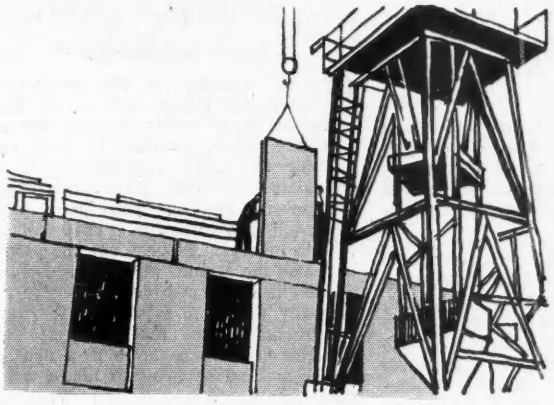


Fig. 10.—*The placing of wall units.*

FIG. 11.

Fig. 11.—*Tubular steps.*

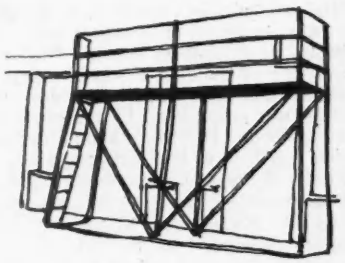


FIG. 12.

Fig. 12.—*Tubular scaffold.*

mechanised equipment, excavators, cranes, bulldozers, etc., whilst another delivers prefabricated foundations and floor units. The increasing reliance on mechanised equipment by this particular building trust is shown below:

Year	Tower Cranes		Excavators		Scrapers		Bulldozers	
	No.	Load tons	No.	Volume m^3	No.	Volume m^3	No.	Performance HP
1950	23	69	14	5.72	—	—	2	160
1951	58	174	16	7.23	15	2.75	4	292
1952	83	257	17	8.75	17	3.15	7	532

The period during which cranes have been employed on one particular project has been reduced from 8.9 to 5.7 months and transfers of cranes from one project to another have been increased from 1.2 to 1.7 a year.

VERTICAL TRANSPORT

Vertical transport of materials is mainly handled by tower cranes of the type SBK-1 with a capacity of 1.5 tons. The SBK-1 is, however, not suitable for buildings of more than eight storeys in height and incorporating large wall units. Here cranes with a capacity of five tons and capable of serving 14-storeys are used. The assembly of lift shafts advances faster than that of the superstructure, so that the lifts can be used for the transport of materials (Fig 8). The structural units of lift shafts are 1½ storeys high.

Bricks and ceramic facing tiles arrive in parcels and other materials in crates. Work below ground level is carried out by excavators and trench diggers; during the winter the ground is warmed with the aid of electricity. For buildings of more than six storeys high ordinary foundations are being replaced by prefabricated reinforced concrete units, with an average weight of 2.25 tons (Fig. 9). Operations are four times faster than previously, weight and volume of foundations are reduced and complications arising from frost eliminated. Prefabricated floor units now have a maximum area of 110 sq. ft. and weight of 2,920 kg. They are made of reinforced aerated concrete or ordinary concrete with a permanent shuttering of insulating materials. The average output of a worker engaged on assembly is 435 sq. ft. per eight-hour shift. Productivity of the assembly of floor units, stair units and landings has increased three-fold as compared with traditional methods. Since 1951 special wall units incorporating gas and water mains and soil and waste stacks have come into use. These units have an area of 3.9 cu. yds.

(*ii*) *Leningrad.* — In Leningrad six-storey blocks of flats are now being built with large prefabricated units. Assembly progresses without break in three 8-hour shifts. One tower crane, with a capacity of three tons and radius of 10m is positioned on each side of a block. Complete assembly of one storey requires six days. The external walls consist of piers between and panel-walls beneath the windows topped by lintols laid end to end (Fig. 10). The largest prefabricated sections have a volume of 2.6 cu. yds., units for external walls weighed up to 2.4 tons, those for internal walls 1.5 tons. Reinforced concrete floor planks rest on internal walls and lintols of external walls; flights of stairs and landings are also precast. Roofs incorporate prefabricated trusses and doors and windows arrive on the site primed and glazed. The erection team includes a crane driver, signaller who is indispensable once assembly reaches the third floor, charge hands for servicing the cranes, and a fitter in control of assembly, assisted by a mate and a labourer.

PLACING THE UNITS

Before each shift the fitter and foreman jointly plan subsequent operations. Whilst the chargehand receives from the fitter a list of units required, the mate gets ready his tools and the labourer prepares mortar. The fitter and his mate first place the wall units at a corner. When the mate has spread mortar, the fitter signals the crane driver and the wall unit is transported to a position no more than 1 ft. from its final location; the unit is placed accurately with the aid of crowbars and plumbs and the crane is then detached from the unit by the mate who stands on tubular steps (Fig. 11). Abutting storey-high wall units are linked and made fast by means of cement grout and mastic; the panels under the windows are positioned next, to be followed by the lintols. For this operation a tubular scaffold (Fig. 12) is placed close against the walls. When the mate has spread mortar on the external walls and the labourer on the internal walls, the floor panels are laid by crane. Mate and labourer place them whilst the fitter gives directions from the floor below. Interlocking landings and flights of stairs are placed in identical manner.

A team requires the following equipment: (1) 2 crowbars (¾ in. diam., 5 ft. 2 in. and 5 ft. 6 in. long, pointed at one end and flattened at the other); (2) 3 trowels (fitter, mate and labourer); (3) 1 shovel (labourer); (4) 1 plumb (fitter); (5) 1 line; (6) 1 mallet; (7) 1 spirit level

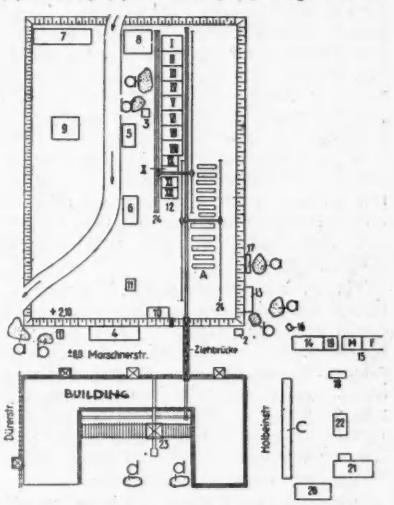


Fig. 13.—*The production of precast floor units on an East German site. The diagram shows: I-XII, production line;* 1-3, *mixers;* 4 *and* 5, *storage sheds for cement;* 6, *circular saw;* 7, *fuel shed;* 8, *steam curing plant;* 9, *steel benders;* 10, *site agent;* 23, *tower crane;* 24, *overhead travelling cranes; A, storage of precast units.*

5 ft. long; (8) 3 buckets; (9) 1 mortar container; (10) 1 tubular scaffold; (11) 1 tubular steps; (12) crane gear for prefabricated units; (13) protective scaffolding.

(*To be continued.*)

THE INSTITUTE OF BUILDERS

"New Spirit of Co-operation with Ministry and NFBTE"

THE new spirit of co-operation between the Institute of Builders and the Ministry of Education and the National Federation of Building Trades Employers that has been established in the past few months was emphasised by the principal speakers at the Institute's annual dinner, which was held at Fishmongers' Hall, in the City of London, on Tuesday night.

The toast of the Institute was proposed by MR. D. F. VOSPER, Parliamentary Secretary to the Ministry of Education. He had, he said, received a copy of the Institute's rules, the first of which, he noted, was to promote excellence in building. In this matter, he felt that his Ministry was an interested party, as with £60m. to spend on new schools in the coming year (an increase of 20 per cent. over the previous year), they were a fairly important customer. Since the war, he reminded his hearers, just under 2,500 new schools had been built in this country, and he thought that the new schools were making an important contribution to the appearance of the countryside—more so, indeed, than new housing or the new city buildings.

Continuing, Mr. Vosper said he thought that there had been a very great improvement in the standard of school buildings in the past six or seven years, and it was noteworthy that the schools were now being built more cheaply than they were five years ago. From the point of view of those working in them, the new schools were indeed a sheer delight compared with the older schools, and, to quote Ruskin's requirements of a building, he thought that the new schools were (1) doing their practical duty well, and (2) were graceful and pleasing in fulfilling this duty.

It was causing the Ministry some concern, however, that more firms were not tendering for the new schools, as they were very anxious that they should not fall down on the new schools programme.

There were two ways, Mr. Vosper continued, in which the Institute of Builders could help the Ministry. The first was by helping to bring the advances of science to all sections of the building industry, and so assist in narrowing the gap between the best practice and the worst. Secondly, they could ensure that the building industry offered an attractive career for those leaving school.

None in his present audience would doubt the need for technical education, which the Government was constantly emphasising. One of the most important tasks to-day was to train more scientists and more technicians, and to this end there was a very large increase in the building of new technical institutes.

But these steps on the Ministry's part were not enough—they needed the help, to achieve their aim, of bodies such as the Institute of Builders—they, the Ministry, had to "go it together" with the industry if they were to produce the right solution.

"We shall give better technical education," said Mr. Vosper. "We want you to give us trainees, in their early years, by releasing them for one day a week for their technical training in our institutes."

There was still a great need for educational work on a voluntary basis, such as the Institute of Builders could perform. From the employer the Ministry wanted help in two ways: (1) by day release for the attendance of apprentices at technical colleges, and (2) by encouragement of apprentices to participate in "sandwich" courses. The latter meant that for the first five years an apprentice, after leaving school, should spend six months back in a technical college for every six months working for his employer—always, he was afraid, at his employer's expense! This was a policy which he believed was going to produce dividends, and recently quite a number of firms had shown signs of interest in this form of training. "Your Institute can be of great help in this—in saying if we are on the right lines," he declared.

Mr. Vosper concluded his remarks by saying that in the last few years there had not been, between his Ministry and the IOB, the degree of co-operation that was desirable; but the fact that he had been invited, and accepted the invitation, to the dinner tonight, pointed to the increased degree of co-operation that had now come about between them.

THE PRESIDENT'S VIEWS

In his response, the President, MR. F. L. WALLIS, OBE, JP, said it was perfectly true that there had not been the co-operation between the Institute and the Ministry that there should be. He hoped, however, that this state of affairs would not go on, and with the new life that there was in the Institute to-day, he did not see why it should. Furthermore, he acknowledged that in the past there had not been proper co-operation between the Institute and the NFBTE, but in the last few months this co-operation had taken shape and would go on taking shape. They had recently got into close touch with their friends of the "National," and had achieved "perfect harmony," which made him hopeful that before many weeks a step forward would be taken which would have a great effect on the Institute, and it would be seen, he hoped, that the Institute had done a good job.

Mr. Wallis concluded by saying that the main aim of the Institute should be to serve the building industry by positive rather than negative action, and he looked forward to the days when the letters "FIOB" would be the hallmark of efficiency, ability and integrity in a builder.

The toast of the Guests was proposed by MR. G. A. SWAYNE, vice-president, IOB; the response was by the BISHOP OF ROCHESTER.

IN PARLIAMENT

Road Reconstruction

ON the motion for the adjournment, before the House rose for the Easter recess, MR. KENNETH ROBINSON called attention to the need for a road construction programme for London, particularly in the central area. He would grant to the Minister the priority that had been given to the Cromwell-road extension. That had been held to be urgent in 1905, and the proposal to widen the Strand, which was also to be tackled, had been considered urgent in 1912. But why was there a proposal for the reconstruction of the Albert Bridge? Some thought ought to be given to a new road bridge at Charing Cross to relieve congestion on the Waterloo and Westminster bridges.

There had been three plans for London. None was good, and two were now hopelessly out of date. What was needed was fresh consideration and an entirely new approach to the question of London traffic congestion. It was probable that there would be no solution to the problem unless there were three or four relief highways, with limited and controlled access and without intersections, either elevated on viaducts or sunk below street level. These would be expensive to construct, but the volume of traffic they would carry would be considerable and might make unnecessary some of the costly development now planned.

The Minister should set up a small committee of experts to examine the present and future needs of London traffic and to prepare a comprehensive and co-ordinated plan for a 20 to 25 years' road construction programme, phased, if possible, over five-year periods.

MR. HUGH MOLSON, Parliamentary Secretary, Ministry of Transport and Civil Aviation, said that the LCC had prepared a development plan for London which the Minister of Housing and Local Government had approved with certain modifications on March 7. That plan provided for a large number of improvements to the highways which were likely to take the next 20 years and would lead to the ultimate road programme which the county council had in mind. Immediately after Easter work would be begun on the Cromwell-road extension; that would cost £3m. Route 11 would be started soon, and the widening of Piccadilly and Swallow-street would also be undertaken.

In 1955-56 the Elephant and Castle roundabout and the Dartford-Purfleet tunnel, which was a major task of the utmost importance, would be begun. A large number of schemes for the period 1956-57 to 1958-59 had already been announced by the Minister, but the exact priorities had not yet been determined. The department was prepared to consider with the LCC what ought to be the priorities, and would bear in mind what had been said about Albert Bridge. Of the 17 classified road schemes mentioned by the Minister on February 2, 10 were in the London County Council area. The Minister of Housing and Local Government and the Minister of Transport considered the LCC plan a good one. The A ring road, which the Labour Government had decided to drop in 1950, had been considered by the transport experts in the department as the most valuable aid to the relief of

congestion, and the Minister was considering the possibility of reviving the project. It would be extremely costly but extremely beneficial. The Ministry would have preferred a fly-over at Hammersmith, where the new Cromwell-road extension passed through, but the LCC were not prepared to agree. Work was being so undertaken that if at some later date a fly-over was found necessary it would be possible to add it.

No one contemplated the complete demolition and reconstruction of London, but that would be necessary if there was to be no restriction on the indiscriminate use of cars by everyone coming to London. The provision of double tubes to enable express trains to be run was out of the question. The idea of express ways was not excluded. The A ring road was an express way, and although the Government did not think there was need for an inquiry now, they did not exclude the possibility or desirability of one.

OTHER BUSINESS

SWEDISH TIMBER HOUSES

MR. SPENCE asked the Secretary of State for Scotland whether the maintenance costs of Swedish timber houses in Scotland were higher or lower, on average, than those of similar houses of traditional construction.

MR. JAMES STUART, in a written reply on March 29, stated: Complete information on which to base an accurate comparison is not available. A sample investigation suggests, however, that the cost of maintaining Swedish timber houses may be somewhat higher than for traditional houses, mainly because of the desirability of treating them with wood preservative periodically.

MR. SPENCE also asked what complaints had been received of excessive deterioration in the fabric of Swedish timber houses in Scotland, and how far those complaints were general or were confined to specific areas or to specific consignments.

MR. STUART: I have had no such complaints. Some apparent deterioration of the external fabric of houses in one county, reported last year, was found to be superficial, weathering having no deleterious effects.

CLYDE VALLEY DEVELOPMENT

MR. MCINNES asked the Secretary of State for Scotland what proposals he had received from the Clyde Valley Planning Advisory Committee about the provision of a new town at Houston to deal with the overspill problem in the Clyde Valley area: and what action he proposed.

MR. J. STUART, in a written reply on April 5: I have received no such proposal, but I understand that the committee have the matter under consideration.

BRICK AND CEMENT PRODUCTION

MR. GOWER asked the Minister of Works, if he would make a statement about the level of brick production during the past 12 months, and his estimate of future prospects.

MR. NIGEL BIRCH, in a written reply on April 5, stated: The average monthly production of bricks in 1954 was 604 million. In the last four years the output of bricks has expanded each year and supplies should be adequate for the 1955 building programme.

MR. GOWER also asked the Minister, if he would make a statement about the level of cement production in the past 12 months and his estimate of future prospects.

MR. BIRCH: Cement production in 1954 increased by three-quarters of a million tons to nearly 12,000,000 tons. The industry is increasing its capacity still further, and I believe that home demand in 1955 will be met.

DEVELOPMENT ORDERS

MR. WARBEY asked the Minister of Housing and Local Government whether he was aware that no procedure existed by which persons, other than the applicant, aggrieved by a development order made by a local planning authority could appeal against the order; and whether he would introduce amending legislation to make such appeals possible.

MR. WILLIAM DEEDES, Parliamentary Secretary, Ministry of Housing and Local Government, in a written reply on April 5: Mr. Warbey is referring to decisions on applications for planning permission. If everyone were entitled to object before anyone was allowed to put up a building or change a use or carry out some other development, enterprise would be subject to intolerable delays.

Development which does not accord with the provisions of an approved plan is subject to restrictions; and in important cases third parties will be given an opportunity to make their views known before development substantially out of accord with an approved plan is allowed.

FORTH TUNNEL PROPOSALS

MAJOR ANSTRUTHER-GRAY asked the Minister of Transport and Civil Aviation on April 6 whether he had now made a personal investigation of the Forth tunnel site, and whether he would make a statement.

MR. JOHN BOYD-CARPENTER: Yes, but any statement must await the report from the panel of independent experts which is to be set up to examine the tunnel scheme.

MR. WOODBURN said that since the hopeful announcement of this project by the Government consideration seemed to have disappeared into the mist, could the Minister not say where consideration now was, and when there was likely to be any advance.

MR. JOHN BOYD-CARPENTER said that it had been agreed that a panel of experts should examine the scheme for a tube under the Forth, and the Government were proceeding with that.

THE BUDGET

MR. BUTLER, Chancellor of the Exchequer, surveyed the economic situation in the course of his Budget speech on Tuesday, before giving details of his new proposals. He said that the upward trend for fixed investment was continuing, but that housing was not likely to show so great an increase in investment this year as last. In private building, industry's demand for factories, plant and machinery was still rising, as it had done last year. He also announced that there would be 6d. off the standard rate of income tax.

RURAL WATER SUPPLIES AND SEWERAGE

Grants Under New Act

THE Ministry of Housing and Local Government has issued a circular to the appropriate authorities on the payment of grants towards the cost of schemes for the provision or improvement of water supplies and the provision of sewerage facilities in rural localities in England and Wales. The circular (No. 30/55) refers to Circular 218/45, dated December 17, 1945.

The new circular draws attention to the Rural Water Supplies and Sewerage Act, 1955, which enables grants under the Rural Water Supplies and Sewerage Acts to be made either by lump sum or by periodical payment towards revenue expenditure, instead of by lump sum only as, with certain exceptions, the Act of 1944 required.

From the date of the operation of the Act of 1955, the circular continues, grants will normally be paid over a period of 30 years in half-yearly instalments; and the instalments will be equivalent to loan charges (calculated on the Public Works Loan Board rate of interest current when the grant is finally promised) on the lump sum which would otherwise have been given. Exceptions to this rule will be that (a) where the grant on a capital basis would not exceed £2,000 the system of payment by lump sum will continue, and (b) where the scheme is carried out by a water undertaking, other than the local authority, under an arrangement by which that authority guarantees a minimum income for a period of years, the half-yearly payments will be made over a period equal to that of the guarantee.

Under the future arrangements it will, therefore, normally be necessary for a local authority to borrow the whole capital sum required for the scheme. The periodical payments of grant will normally start at the next half-yearly loan charge date after completion of the scheme (or of a contract forming part of a scheme in respect of which a separate grant undertaking has been given).

Where an undertaking to pay by lump sum was given before the Act of 1955 came into force, equivalent periodical payments will normally be substituted for any amount not claimed by that date, and it will be necessary for the local authority to borrow that amount. In cases of this kind local authorities will be notified of the amount of the periodical payments to be substituted for the lump sum. If, however, the amount remaining to be paid does not exceed £2,000, it will be paid as a lump sum on completion of the work.

The circular adds that there will be no fixed rate of grant, and the general principles for assessment will continue to be as set out in paragraph 6 of Circular 218/45. As is the present practice, review of grant may be undertaken at any time up to the stage when the final cost of a scheme is known, but there will be no review after the final cost stage.

RSI REPORT

The annual report of the Council of the Royal Sanitary Institute for the year 1954 has now been issued. Copies from the Institute at 90, Buckingham Palace-road, SW1.

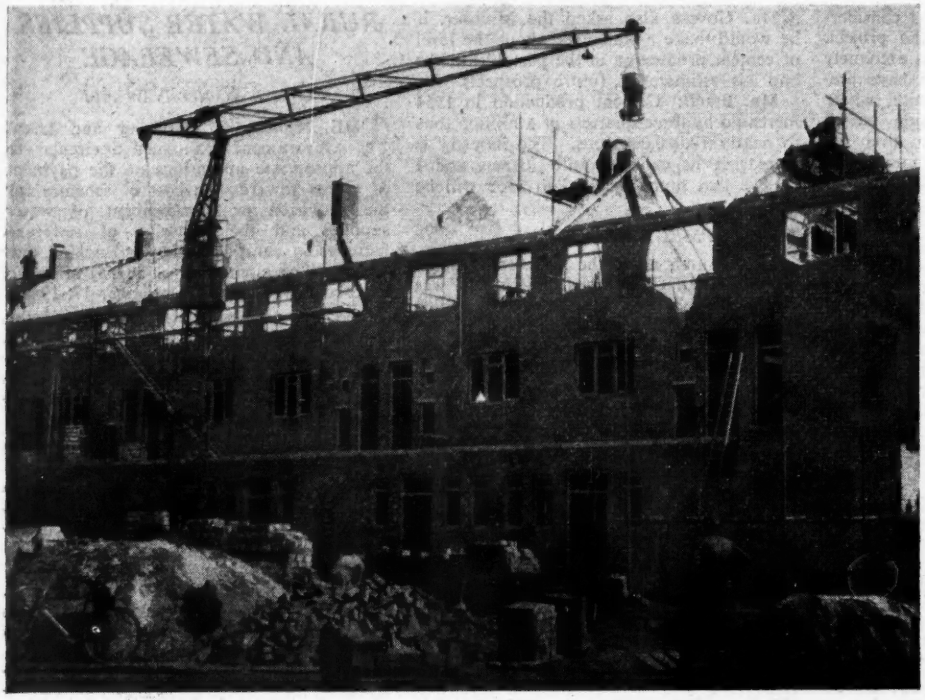


Fig. 1.—Eleven shops and maisonettes at Manchester. Tower crane delivering mortar.

BUILDING WITH A TOWER CRANE

Further Studies by the BRS at Norwich and Manchester

By H. F. BROUGHTON and the late N. S. PIPPARD

THE Building Research Station's trials at Norwich* in which a rail-mounted tower crane was employed to assist in handling materials for two-storey building, showed clearly the value of this type of machine when used with a properly planned programme. Further studies have now been made of the value of such cranes for three-storey work. Observations have been carried out at Manchester, where a contractor was using his own crane for the building of a three-storey block of shops with maisonettes over, and also at Norwich where the Direct Labour Organisation used its crane for building three-storey flats. In both cases it was possible to compare the results achieved on the contracts for which the crane was used with those on similar work employing normal methods.

The Work at Manchester

The contractor had secured two contracts for the erection of shops with maisonettes over. These were of a type which had been extensively used by the Manchester Corporation in the development of its suburban areas. They were normally built in blocks of between three and eleven units and the building time for the larger blocks had usually been about two years.

Arrangements were made with the contractor for one contract, consisting of eleven units (Figs. 1 and 2), to be carried out to a pre-arranged programme, using his tower crane for handling materials, while the other contract, of seven units, was built by his normal methods. It was thought that a comparison of this kind would be very instructive since this particular contractor fell into the category of the more efficient house-builders in the country as shown by the survey of productivity in house building.†

† Productivity in House Building. National Building Studies Special Report No. 21 (HMSO).

The overall dimensions of the terrace of eleven units were 206 ft. 4 in. by 46 ft. 10 in., whilst the shorter terrace was 131 ft. 10 in. by 46 ft. 10 in. The shop floor area in each unit was 446 sq. ft., and that of the two-storey maisonette over the shop was 850 sq. ft. External walls were of 15½ in. and 11 in. cavity brickwork, with load-bearing party and partition walls of 13½ in. solid brickwork. Other partitions were of 2 in. and 3 in. lightweight concrete and hollow clay blocks. The floors were constructed with "Myko" precast concrete beams, infilled with lightweight concrete slabs and finished with Marley floor tiles on a cement screed. The roofs were of conventional timber construction covered with interlocking clay tiles. Apart from the difference in size the two blocks were identical in construction and while there were minor differences in specification, as for example in the use of different facing bricks, these were unlikely to affect the work content per unit of shop and maisonette. Work on the foundations was of course not comparable and attention was, therefore, directed solely to the superstructure and finishings.

For the block of eleven units, a programme was prepared in collaboration with the contractor. It was drawn up in two parts: one for the shell of the superstructure and the other for finishings (Figs. 3 and 4). All details of the finishing work could not be known until the prospective tenants had specified their requirements. It was thus found convenient to use two programmes as this facilitated introducing amendments later.

The other project for seven units was carried out by the contractor's normal

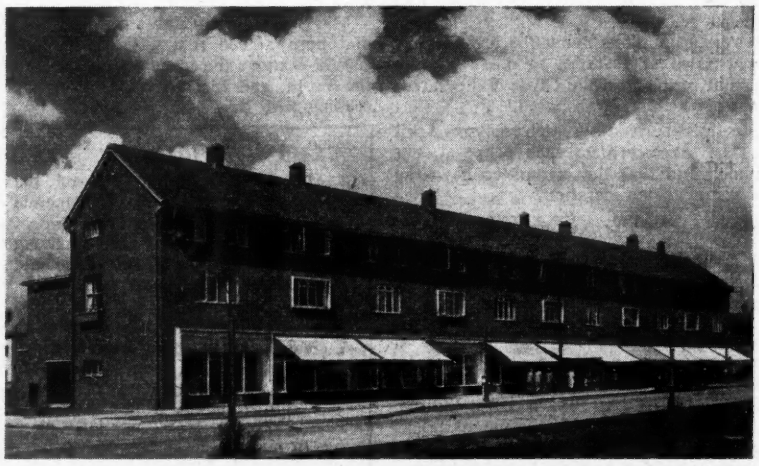
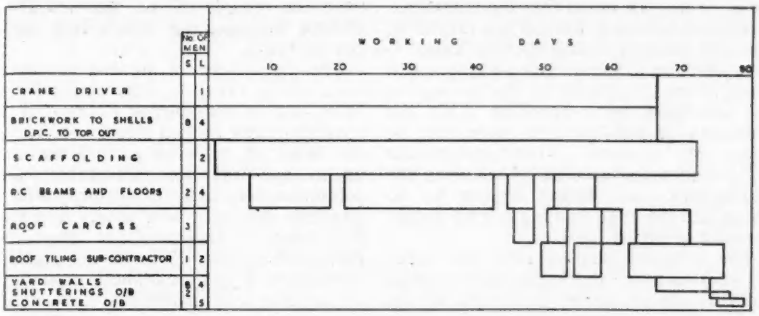


Fig. 2.—Eleven shops and maisonettes at Manchester built with a tower crane.

* *The Builder*, 1953, 185 (5761), 108-111.
The Builder, 1953, 185 (5762), 145-147.



PROGRAMME EXCLUDES:
A SITE WORK
B PREPARATORY WORK
C UNLOADING
D SUPERVISION
E GARAGES

SUMMARY OF MAN-HOURS 11 SHOPS	SKILLED	LABOURER	AVERAGE PER UNIT S	AVERAGE PER UNIT L
CRANE DRIVER		532		48
BRICKLAYER	4,736	2,368	431	215
SCAFFOLDER		1,136		103
CONCRETORS	752	1,568	68	143
CARPENTERS ROOF TIMB.	409		37	
ROOF-TILERS	352	176	32	16
	6,248	5,780	568	525
	12,028		1,093	

Fig. 3.—Shell programme for eleven shops with maisonettes over.

methods without a formal programme. Some mechanical help was provided by a 106 h.p. caterpillar dozer carrying a 30 ft. jib but this was only employed intermittently and then only for lifting precast concrete floor beams. This had been the contractor's normal procedure hitherto.

RESULTS ACHIEVED

Work on the eleven shells of the contract with the tower crane occupied a total building time of 80 working days or 15 working weeks during the winter of 1952-3. The labour expenditure was 11,617 manhours.

An analysis of the manhours and building time per unit of one shop with maisonette, compared with the programme is shown in Table I.

TABLE I

Labour expenditure and building time for crane-assisted block for shell construction of one unit of shop and maisonette

Stage	Manhours	
	Programme	Actual
I Brickwork (from dpc) skilled	431	370
II Scaffolding	103	138
III Roof Carcase	37	38
IV Roof Tiling	32	14
V Crane Driver	48	51
VI Material Handling and Concreting Gang (all other labour)	442	443
Total manhours ...	1,093	1,054
Working days ...	6.7	7.3

The other contract for seven similar shells covered 98 working days or 19 working weeks during the spring and summer of 1953. The labour expenditure was 10,311 manhours. A comparison of the times recorded on this site with those of the crane-assisted site is shown in Table II.

It will be seen that the apparent average saving achieved on the crane-assisted site amounts to 6.7 working days and 419 manhours per unit. It will be noted that the principal savings were made in the operations of brickwork and materials handling. The former saving is attributable to the increased productivity of the bricklayers on the crane-assisted site made possible by the more efficient service. This increased production is also reflected in the saving of some 20 hours per unit in scaffolding time. In handling materials the savings are considerably greater and are directly attributable to the value of the crane as a handling machine.

In the finishing trades, the objective of the programme had been to keep pace with, and so take full advantage of, the

TABLE II

Comparative labour expenditure and building time for shell construction of one unit of shop and maisonette

Stage	Manhours	
	With crane	Without crane
I Brickwork (from dpc) ...	370	475
II Scaffolding	138	157
III Roof Carcase	38	35
IV Roof Tiling	14	20
V Crane Driver	51	—
VI Material Handling and Concreting Gang (all other labour)	443	786
Total manhours... ...	1,054	1,473
Working days	7.3	14.0

increased speed of shell construction. The crane could therefore only have an indirect influence on the speed of finishing since it finished its work with the roof covering. As will be seen from the programme in Fig. 4, the trades were closely phased to suit the shell programme.

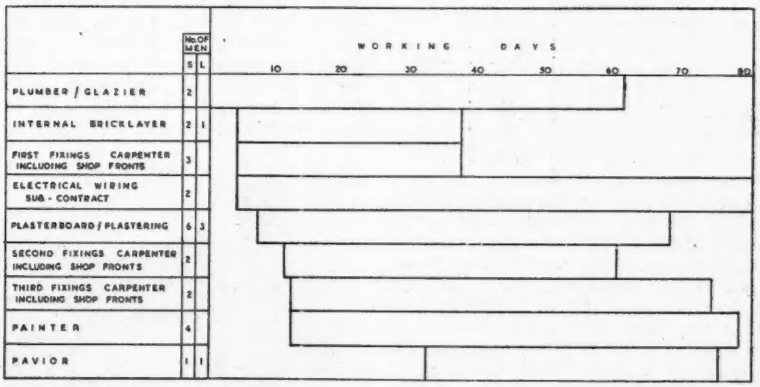
Results, as compared with the programme, were not as satisfactory as with the shells. There was an increase in expended manhours of some 327 over the programmed hours and an increase of site time of 2.7 days. Table III shows these results.

TABLE III

Labour expenditure and building time for the crane-assisted block for finishings of one unit of shop and maisonette

Trade	Manhours*	
	Programme	Actual
Plumber and Glazier	89	117
Carpenter	234	352
Bricklayer	72	151
Plasterer	399	410
Painter	192	245
Pavior	63	101
Total Finishings ...	1,049	1,376
Working days	7.30	10.00

* Includes all servicing labour.



SUMMARY OF MAN-HOURS	SKILLED	LABOURER	AVERAGE M/HRS PER UNIT S	AVERAGE M/HRS PER UNIT L
PLUMBERS	976		89	
CARPENTERS	2,568		234	
PLASTERERS	2,928	1,464	266	133
BRICKLAYERS	528	264	48	24
PAINTERS	2,112		192	
PAVIORS	344	344	31	31
	9,456	2,072	860	188
	11,528		1,048	

Fig. 4.—Finishings programme for eleven shops and maisonettes.

The increase in site time was in part caused by additional works occasioned by variation orders after the programme was prepared, but more particularly by the inability to obtain the number of plasterers called for by the programme. This reduced the plasterers' speed and although their manhours were not seriously affected, the building time was increased and following trades were delayed, with resultant waiting time and increased labour expenditure by these trades. It would appear necessary also to make a greater allowance than was done in this case for "drying out" time, since the work had to be carried out in weather in which drying was markedly longer than normal. However, that some degree of success was obtained in the finishing trades, both in labour expenditure and building time, is shown by the comparison in Table IV, of the actual results with those obtained on the unprogrammed site.

TABLE IV

Comparative labour expenditure and building time for finishings of one unit of shop and maisonette

Trade	Manhours*	
	On site with crane	On site without crane
Plumber and Glazier	117	157
Carpenter	352	305
Bricklayer	151	173
Plasterer	410	563
Painter	245	236
Pavior	101	150
Total finishings	1,376	1,584
Working days	10.00	23.00

* Includes all servicing labour.

From the contractor's own accounts and the labour expenditure recorded on the site a comparison of the costs of shells and finishings including plant costs can be made (Table V).

TABLE V

Comparative site labour and plant costs for unit of shop and maisonette

	With crane	Without crane
	£	£
Shell	277	351
Finishings	375	423
Plant Costs	67	99
Total	£719	£873

The above costs are comparable, and the savings achieved are attributable to the combined use of the tower crane and the programming of the work. As always, it is extremely difficult to separate the effect of the crane from that of the programme but it may be noted that for the work on the shells in which both the crane and the programme exerted their influence, a saving of £106 per unit was made, whilst on the larger amount of work in the finishings, in which only the programme could help, the saving was £48. This would suggest that on these particular contracts the direct saving by the crane as a handling machine was considerable.

The lower plant cost on the crane-assisted contract is particularly noteworthy and reflects, of course, the considerable reduction in building time on the crane-assisted site, and suggests that even such an expensive machine as the crane, properly used, will actually save on plant costs, because of its much shorter operating time. It may be noted that the contractor charged the crane to the job at a rate of 9s. per hour plus driver and running costs.

In addition to the savings on labour and plant, shown in Table V, the savings in site overhead costs resulting from the reduction of building time must also be taken into account. These savings are difficult to assess accurately, but from the contractor's own figures appear to be about £25 per unit, making a total saving per unit of about £180.

The crane-assisted project was larger in work content than the other (eleven units as against seven) and some of the saving may be attributable to this since both the labour expenditure and building time per unit would be expected to be reduced by the larger volume of work. It is impossible to make a precise estimate of the effect of size of contract but from experience on other types of building—notably two-storey housing—it seems unlikely that this could account for more than, at the most, £20 of this difference. There was thus a saving due to the combined effect of the crane and programme of at least £160 per unit or well over 15 per cent of the cost of labour and plant for the erection of the shells and for finishings.

The contractor now owns and operates five tower cranes and considers that their use together with proper programming is responsible for a reduction of total costs of some 3 to 4 per cent as compared with his previous methods. This reduction which is calculated on contracts totalling over £200,000 with the cranes, and over £125,000 by normal methods in similar contracts, is equivalent to a reduction of about 10 per cent on total labour and plant costs.

The Work at Norwich

The study at Norwich involved the building of three-storey blocks comprising twelve flats. A programme was prepared for the shell of one of these blocks and the work on site was observed. A similar block built a few months previously under the supervision of the same general foreman was used in this case as the basis for comparison; the data being extracted from the records of the Norwich Direct Labour Organisation which had carried out the work.

The flats were of normal traditional construction (Fig. 5), with external brick walls, cast *in situ* concrete floors, and tile-covered timber framed pitched roofs. The site being on made-up ground, the work up to dpc was not measurable before commencement and was not programmed, although the crane was used. The work from dpc to the roofed-in stage, was programmed (Fig. 6) to be completed in 50 working days with a labour expenditure of just over 9,000 manhours.

RESULTS ACHIEVED

Table VI shows a comparison of the manhours in the programme and the actual labour expenditure.

TABLE VI

Labour expenditure and building time for shells of block of 12 flats

Stage	Manhours	
	Programme	Actual
Brickwork (skilled only) ...	4,056	3,827
Formwork and reinforcement to floors	810	1,021
Scaffolding	1 008	812
Roof Carcase (skilled only) ...	330	288
Roof Tiling (skilled only) ...	284	258
Crane and Driver	440	456
Materials Handling and Concreting Gang (all other labour)	2,136	1,716
Total manhours... ...	9,064	8,378
Building time	50 days	56.5 days

Some delay in building time was caused by a shortage of reinforcing steel and this is reflected in the increased manhours, as compared with the programme, for the reinforcing trade. There was also some delay in the delivery of stone dressings and roofing tiles.

Despite these delays, however, the effect of the use of the crane and the planned production is seen in the comparison, in Table VII, of the manhours expended on the crane-assisted block with those expended on the similar block built several months previously by the Corporation's normal methods, and for which the only handling aid was a platform hoist. No

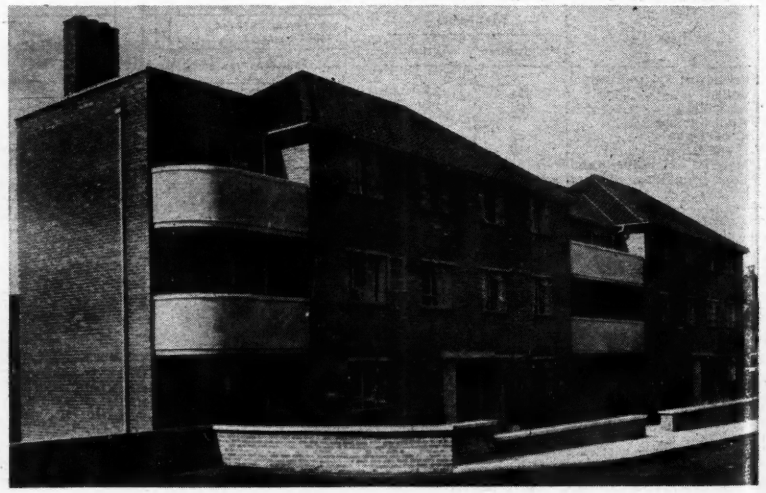
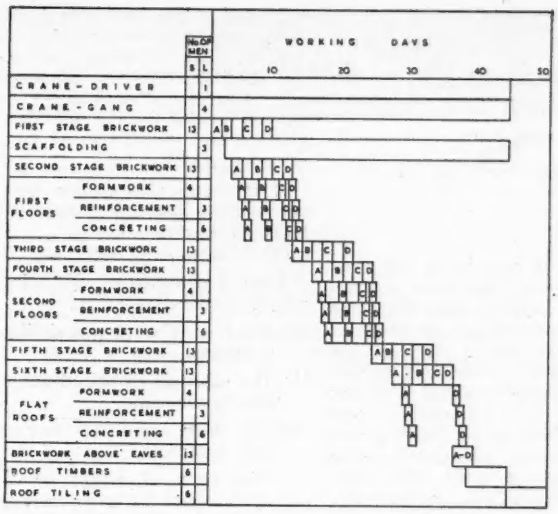


Fig. 5.—Block of twelve flats at Norwich (front elevation) built with a tower crane.



SUMMARY OF MAN-HOURS	SKILLED	LABOURER
CRANE - DRIVER		352
CRANE GANG		1,408
BRICKLAYERS	4,056	
SCAFFOLDERS		1,008
CARPENTERS	608	
STEEL WORKER		240
CONCRETORS		480
TILERS	288	
*ADD	4,952	3,488
	248	386
	5,200	3,874
	9,074	

*ADD	MAN-HOURS
A CRANE DRIVER OVERTIME 44 DAYS OF 1 HOUR	= 44
B " GANG " 2 MEN " " 1 "	= 88
C CRANE DRIVER MAINTENANCE " " 1 "	= 44
D CARPENTER PRE-RAKE, EASE & MAINTAIN SHUTTERING	= 200
E " " ROOF TRUSSES	= 48
F STEEL-WORKER PREPARE & ASSEMBLE REINFORCEMENT	= 30
G LAY TRACK / ERECT CRANE	= 160

Fig. 6.—Shell programme for one block of twelve flats.

formal programme was used in building this block.

TABLE VII

Comparative labour expenditure and building time for shells of block of 12 flats

	Manhours	
	With Crane and programme	With hoist but without programme
Bricklayers (skilled only) ...	3,827	5,194
Formwork and reinforcement to floors	1,021	1,399
Scaffolding	812	1,049
Roof Carcase (skilled only) ...	288	330
Roof Tiling (skilled only) ...	258	288
Crane and Driver	456	—
Materials Handling and Concreting Gang (all other labour)	1,716	3,520
Total manhours... ...	8,378	11,780
Building time	56.5 days	140 days

Comparison of costs on the two blocks from the records of the Direct Labour Organisation is unfortunately not possible since these formed part, for the purposes of accountancy, of a contract involving several blocks. An estimate can, however, be made by taking the saving in labour at standard rates, and assuming site and administrative overheads at £25 per week for building time saved. In this way the saving is found to be of the order of £715, or approximately £60 per flat, after allowing for the crane depreciation and running costs at 16s. per hour.

In addition to the saving in time and money on the shells by the crane, valuable assistance was given in the extensive excavation, mass concreting, and heavy brickwork in foundations necessitated by the fact that the site was made-up ground. The crane was used to load spoil and rubbish from eight to ten feet below ground level to disposal vehicles at ground level, and for delivering bricks and mortar and placing concrete at these depths. In mass concreting a rate of over one yard cube of concrete placed per manhour was achieved —probably some three or four times greater than could have been reached by normal means in such difficult conditions. Bricks and mortar were lowered to the foundation trenches at no greater cost than that at which they were deposited at ground level.

The finishing trades for the crane-assisted block were not included in the programme in this case but it is of interest to note that the manhours expended in these trades showed a saving of 1,540, i.e., approximately £250 or £20 per flat over the cost of the same work in the other block. This saving cannot, of course, be attributed directly to the influence of the crane, although the latter was used for hoisting the internal partition blocks and part of the plasterers' materials where this was possible. The fact that the shells were produced to a programme would, however, be expected to have an indirect influence in the following trades.

In this case, therefore, the saving attributable either directly or indirectly to the crane and programme is about £80 per flat, or about 20 per cent. of labour and plant costs for shells and finishings.

Conclusion

These two comparisons, the one with a contractor and the other with a Direct Labour Organisation, demonstrate clearly the important part that this type of crane can play in reducing building costs and building time both directly, from its value as a handling aid, and indirectly as a stimulant to improved site organisation through planning and programming.

Acknowledgments

Thanks are due particularly to Mr. E. Seddon, of Messrs. G. and J. Seddon, of Walkden, Manchester, and to Mr. H. C. Rowley, MICE, MIMunE, the City Engineer at Norwich, for providing the facilities without which this work would have been impossible and for their personal and constructive interest in these projects.

The work forms part of the programme of the Building Research Board, and the paper (which is Crown Copyright Reserved) appears by permission of the Director of Building Research.

TOWER CRANES

The Experience of a Building Contractor

By ERNEST SEDDON

TOWER cranes have only recently been introduced into this country and thus it may be useful for other builders and contractors to know of the experience of my own firm, Messrs. G. and J. Seddon, Ltd., with this type of plant. When I first saw an advertisement illustrating the German type of tower cranes I was rather impressed by their potential value as building plant. My favourable impressions may, of course, have been caused, in part at least, by the past experience of the firm with small capacity steam derrick cranes which we had used 20 years ago on contracts where basements were included in the structure.

After seeing the advertisement I found that the Building Research Station had a crane under test, so I went there for fuller information and received good reports. Next I made, with my brother and co-director, a short visit to Germany where builders and contractors had many years' experience of this kind of crane on different types of building. We ordered two cranes on the basis of what we had learned and since then we have purchased another. We have two further improved types of crane on order, which should be delivered before this article is in print, making a total of five cranes in our plant.

One might perhaps say that further testimony to the value of tower cranes is superfluous, considering that we are adding to our stock in this manner, but it will be better to justify such policy and action from experience.

IMPORTANCE OF PRE-PLANNING

Our first two tower cranes were erected for use on three-storey flats, one on a large contract of 147 flats and the other on a block of 12 flats. The result on the 12 flats was disappointing because of our lack of experience on a small job, and because the pre-planning necessary when using a crane was not done.

On the large block of flats pre-planning and phasing of progress was done before the work was started. The contract period

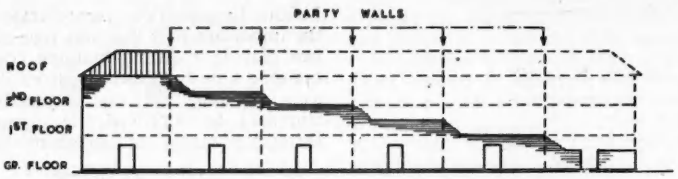


Fig. 1.—Constructional stages.

was 15 months but we planned our progress to complete in 13 months, and this was carried out without any real difficulty. The phasing of this contract was done with our own agent and foreman on site, and was based chiefly on the brickwork and reinforced concrete *in situ* floors. Other trades were not particularly programmed initially, but after two or three weeks' experience on the brick work and concrete floors, we knew sufficient to enable the other trades to be properly co-ordinated. When planning this larger contract we could have the feeling that if anything went seriously wrong with the crane we had a safety valve of work at ground-floor level on the other portion of the site, as all foundation works were carried out without a tower crane.

In passing, I ought to say that, in our experience, little does go wrong mechanically, and the crane should be the first item of mechanical plant on the contract as it is just as beneficial on foundation work as on the third and fourth storey, if not more so, since it is in foundations where barrows and plank runs are so often the normal pattern of work.

It was found that concrete work to first and second floors required fewer man-hours per cubic yard of concrete than normal working at ground-floor level; the servicing of bricklayers was quite simple so long as the width of the building was within the crane's reach. In this connection, advantage was soon taken, for inner rooms, of pre-fabricated scaffolds which could be lifted from one room to another without taking to pieces. Moving concrete lintols from the ground into position was similarly found to be a simple operation without the normal procedure of having labourers load the scaffold previously with these heavy objects.

BUILDING VERTICALLY

It is soon found necessary with a crane to concentrate building operations vertically instead of horizontally, keeping bricklayers together in a small area, as it is possible to service some of the workmen on the inside rooms while others are, at the same time, working on outside scaffolds in the same area. They can then move *en bloc* to the next stage, while the carpenters take their place on sheeting to floors. Because they are all working in close proximity the crane can, with a little forethought, then serve both trades.

On occasion some overtime with the crane is essential—the latter being more necessary during concreting operations—since the concrete work can utilise the crane fully, and it is necessary on these occasions to load bricks in advance of the bricklayers. On the larger contract mentioned above the amount of overtime was of the order of four hours per week during the contract. The most concentrated action is necessary when the crane has to be moved from one line of dwellings to another. This operation may take, on occasions, some two or three days, so that alternative work has to be found. This was found to be much less of a headache than at first thought, because by building vertically there is much inside work to be done, such as breeze walls, tiled cills, chasing for electricians, etc. In these flats the roofs were traditional and the crane again helped enormously in lifting purlins, roof spars, roof tiles and bricks for chimneys.

In the proper use of a crane the chief essential, after pre-planning, is to have the materials on site for vertical building and here, of course, the full co-operation of architect and material supplier is required. The small sketch shown in Fig. 1 shows the stages of construction. You will see from this that the roof timbers are being fixed whilst part of the block may be at first scaffold lift or even dpc level and it may be necessary to persuade the architect to design his structures so that this method of building progression is possible. In this connection a major point in construction is that any required continuous beam either for architectural appearance or structural use must be capable of jointing to suit the vertical method of construction.

More particularly is the architect's help required to obtain permission to use some alternative material, where specified material is difficult to obtain and thus gives rise to delay, as we cannot build up to roof level without *all* the types of material in the structure.

"INFECTIOUS ENTHUSIASM"

Here I would like to pay tribute to the architectural staff of the City of Manchester, and to its housing department architects, for the enthusiasm and co-operation they gave to enable us to use the cranes to advantage, and I would say that such efforts tend to become infectious and both the builder and architect in design and tender stages of future work begin to think of the crane as the first thing to be considered in planning and design.

After the first experience on the flats mentioned above for the Manchester City Housing Department, we obtained a contract with the city architect's department (a distinct and separate department within the Corporation's organisation) for two blocks of shops with maisonettes over, one block of 11 shops and maisonettes and one block of seven shops and maisonettes. It was decided, as an experiment, to build the 11 with a crane and seven without a crane, i.e., by normal methods. The Building Research Station expressed a keen desire to be in on this experiment, and we agreed.

The Research Station, therefore, phased the contract with the crane and their officers were responsible for taking all records on site and the fully detailed programme and results will be found in the foregoing article.

It is remarkable to see that on this contract the mechanical plant charges are less in money value on the crane job than on the traditionally built one.

From a contractor's viewpoint, financially, let me here state that:

(*a*) The type of work was similar on both contracts.

(*b*) The schedule of priced quantities was exactly the same.

(*c*) The same agent was responsible for both contracts.

(*d*) The clerk of works on the crane-operated job became very interested in progress, and the clerk of works on the non-crane job remained traditional in outlook.

(*e*) The crane job was completed in 11 months. The non-crane job was completed in 15 months.

(*f*) After including all overheads there was a clear reduction of 4 per cent. in cost for the crane-assisted job.

SAVING IN COSTS

Our general experience based on a comparison of costs for a number of contracts, carried out both with and without a tower crane, has shown that there has been an overall saving of from 3 to 4 per cent. of the total costs on contracts using a tower crane. Also I feel certain that the extended use of tower cranes would reduce overheads considerably by the non-requirement of barrows, hods, small hoists, reduced scaffolding and also because of the bigger and quicker turnover of work.

In conclusion, I should say that we have found that when a keen agent has been trained in the methods advocated by the Building Research Station he can do the job equally well on his own. In fact, as we gain further experience we find that we can improve on the success we achieved when we first co-operated with the Station in this work. One invaluable advantage which we obtained from our collaboration with the research staff was that they set us working along the correct lines. I should like to take this opportunity of thanking the members of the Building Research Station who have always been so willing and eager to help us in this new method of " Mechanical Aids to Construction."

CIVIL ENGINEERING WAGES

Increase in Rates

THE Civil Engineering Construction Conciliation Board for Great Britain announced on April 15 that it had agreed on an increase in the wage rates of navvies or labourers and craftsmen in the civil engineering construction industry. The increases, made in response to a claim by the workers, are of 1½d. an hour for navvies or labourers and 2½d. an hour for craftsmen. They operate from April 18.

The Builder

CURRENT PRICES OF MATERIALS

THE information given on these pages has been specially compiled for *The Builder* and is copyright. It is the intention that the details given should indicate fair average prices of materials, not necessarily the highest or the lowest. The prices apply to large quantities of materials loaded at works, delivered at London Stations or at site in London Area as stated. Prices for smaller quantities ex merchants warehouse will necessarily be higher so as to include the stocking and handling costs involved. Due to the exceptional circumstances now prevailing it is recommended that the prices of materials should be confirmed by inquiry from suppliers and merchants.

AGGREGATES AND SAND

Delivered site in full lorry loads. Average of prices for Boroughs of Westminster, Paddington, Holborn and St. Pancras.

		£	s.	d.
Pit Ballast	per yd.	1	3	10
Pit Sand	„	1	2	11
Washed Sand	„	1	4	5
¾ in. Shingle	„	1	0	9
¾ in. Broken Brick	„	1	0	0
Pan Breeze	„		10	3
Fine or Coarse Foamed Slag Aggregate ...	per ton	3	0	9
2 yds. of fine and 2.6 yds. of coarse per ton				

CEMENT, etc.

Including non-returnable jute sacks or paper bags.

		£	s.	d.
Best British Portland Cement. Standard Specification delivered Charing Cross area.				
6-ton loads and upwards, site ...	per ton	4	16	6
1 to 6 tons, site ...	„	5	5	6
Rapid Hardening Cement in 6-ton loads and upwards to site ...	„	5	4	6
1 to 6 ton do. site ...	„	5	13	6
Aquacrete Water Repellent Cement. 32s. 6d. per ton on ordinary cement prices.				
Red, Buff or Khaki Colorcrete in 6-ton lots ...	„	6	18	0
Other colours according to colour.				
In 4-ton lots from 211s. 9d. to 435s. 9d. per ton.				
White Portland Cement ...	„	12	17	0
Under 1 ton ...	per cwt.		15	4
417 Cement (Ultra Rapid Hardening) in 6-ton lots and upwards ...	per ton	6	9	0
Super Cement (Waterproof), 32s. 6d. per ton above Portland Cement.				
Cullamix Tyrolean Finish, £9 4s. 3d. to £10 17s. 9d. (1-ton loads and upwards).				
Lightning and Ciment Fondu Brands High Aluminous cement, 6-ton lots and up ...	„	14	0	9
Stourbridge Fireclay, 6-ton loads at Railway Depot, London ...	„	6	2	3

BRICKS

		£	s.	d.
Full Loads.				
First Hard Stocks ...	per 1,000	11	7	0
Second Hard Stocks ...	„	10	11	0
Mild Stocks ...	„	8	16	6
All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job.				
2⅝ in. Nominal Fletton Bricks to sites in W.C.				
District Commons ...	„	5	13	0
Cellular do. ...	„	5	13	0
Keyed do. ...	„	5	15	0
Rustics ...	„	6	18	0
Cellular Rustics ...	„	6	18	0
Single Bullnose do. ...	„	6	13	0
Sandfaced ...	„	7	13	0
Best Blue Pressed Staffs (London Stations) ...	„	24	19	6
Do. Bullnose (London Stations) ...	„	25	13	6
Blue Wire Cuts (London Stations) ...	„	22	11	0
Midhurst Lime Bricks (London Sites) ...	„	10	3	0
Uxbridge Whites (London Sites) ...	„	9	1	6
Special Purpose Sandlime Bricks (London Sites) ...	„	7	14	0
2½ in. Best Stourbridge Fire Bricks (London Stations) ...	„	24	6	0
3 in. do. (London Stations) ...	„	29	3	3
2⅝ in. Machine - made Sandfaced Red Facings (London Sites) ...	„	13	19	6
2⅝ in. Machine-made Multi Red Facings (London Sites) ...	„	14	4	6
2⅝ in. Hand-made Sandfaced Red Facings (London Sites) ...	„	14	11	0
2⅝ in. Hand-made Sandfaced Multi-Colour Facings (London Sites) ...	„	14	11	0
Hand-made Sandfaced Cherry Red Facings. Berkshire district (London Sites) ...	„	17	5	6
Hand-made Sandfaced Multi-Colour Facings. Berkshire district (London Sites) ...	„	17	5	6
Rubber Bricks for gauged arches (London Sites) ...	per 1,000	41	10	0
2⅝ in. Surrey Clamp Burnt Multi Stock Facings (London Sites) ...	„	13	6	0
2⅝ in. Surrey Kiln Burnt Multi Stock Facings (London Sites) ...	„	14	4	6
Glazed Bricks (London Sites), White, Ivory, Brown—				
Stretchers ...	„	64	0	0
Headers ...	„	63	0	0
Quoins, Bullnose and 4½ in. Flats ...	„	80	0	0
Double Stretchers ...	„	85	0	0
Double Headers ...	„	77	10	0
One side and two ends ...	„	87	0	0
Two sides and one end ...	„	89	10	0
Splays and Squints ...	„	83	0	0
Cream and Buff £3 extra over White. Other colours, hard glaze, £8 10s. 0d. extra over White. All above prices plus 7½% for Best quality and plus 7½% less 10% for Second quality.				

PARTITION SLABS, etc.

Delivered Central London Area.

	Minimum lorry loads.			
HOLLOW CLAY PARTITION BLOCKS (Keyed)				
*2 in.	140 yds.	per yd. sup.	4	3
*2½ in.	140 yds.	„	4	6
*3 in.	120 yds.	„	5	2
BUILDING BLOCKS (Keyed)				
*4 in. (6 cavity)	95 yds.	„	6	7
6 in. (8¾" × 5¾")	1250 Blocks	per 1000	25	14	0
*Half blocks at no extra charge.				
CLINKER CONCRETE				
2 in.	100 yds.	per yd. sup.	3	7
2½ in.	85 yds.	„	4	2
3 in.	75 yds.	„	5	0
4 in.	55 yds.	„	6	2
CRANHAM				
2 in.		„	6	8
2½ in.		„	7	4
3 in.		„	8	7
4 in.		„	10	7
4½ in. Load bearing quality ...		„	11	8
FLOOR BLOCKS and FILLER TILES				
3 in. Floor Blocks 12 in. by 12 in. delivered in full lorry-loads ...		per 1,000	32	11	0
4 in. do. ...		„	34	18	0
5 in. do. ...		„	41	11	0
6 in. do. ...		„	46	16	0
7 in. do. ...		„	56	18	0
8 in. do. ...		„	66	14	0
10" × 3" × ¾" Filler Tiles in multiples of 10 tiles		per 1,000 multiples	56	2	0
12" × 3" × ⅝" do.	do.	„ „	63	17	0
10" × 4" × ⅞" do.	do.	„ „	69	14	0

STONEWARE DRAIN PIPES, etc.

The following are the percentages to be added to the Standard List prices delivered London Area.

	Over 2 tons	Over 100 Pieces under 2 tons	Under 100 Pieces under 2 tons
Best Quality	+67½%	+97½%	+107½%
B.S.S. Best do.	+10% +67½%	+10% +97½%	+10% +107½%
Tested Quality	+37½% +67½%	+37½% +97½%	+37½% +107½%
B.S.S. Tested do.	+47½% +67½%	+47½% +97½%	+47½% +107½%

		£	s.	d.
3 in. Land Drain Pipes (in 12 in. lengths) ...	per 1,000	10	13	6
4 in. do. ...	„	14	2	0

STONE

		£	s.	d.
Bath Stone—				
Monks Park ...	per ft. cube		7	10
St. Aldhelm Box Ground ...	„		8	10
Delivered in railway trucks at South Lambeth B.R. Western Region				
Doulting Stone Random Blocks. Delivered London area	„		8	7
Beer Stone. Delivered London area ...	„		8	0
Portland Stone—				
Brown Whitbed in random blocks, 20 ft. average delivered in railway trucks at Nine Elms, B.R. Southern Region ...	„		8	1½
Yorkshire Stone—Blue Robin Hood Quality.				
Delivered to site London in 6-ton lots.				
9 in. × 3 in. Rubbed, weathered, throated and stooled cills ...	per ft. cube	3	4	3
12 in. × 6 in. do. do. ...	„	2	6	0
12 in. × 3 in. Plain coping, twice throated ...	„	1	15	4
12 in. × 3 in. Weathered and twice throated coping	„	2	7	4
14 in. × 6 in. do. do. ...	„	2	2	8
4½ in. × 9 in. Plinth, rubbed on top and face ...	„	1	18	1
3 in. sawn two sides Slabs, random sizes ...	per ft. sup.		6	9

STONE—*continued*

		£	s.	d.
Templates and Cover Stones, 3 in., 4 in. and 6 in. thick, edges coped for rendered brickwork ...	per ft. cube	1	3	5
Do. do. fair one edge for fair faced brickwork		1	7	10
Hard York—				
12 in. × 2 in. Square Steps, rubbed on top and edge	per ft. run		8	2
14 in. × 3 in. Round-nosed Steps, rubbed on top and front	per ft. cube	2	3	8
12 in. × 6 in. Plain Steps, rubbed top and front ...	„	1	18	3
2 in. Rubbed and Jointed Paving, given sizes ...	per ft. sup.		7	10
2 in. Sawn Paving, edges squared, in random sizes	per yd. sup	2	13	10

TILES AND PANTILES

Delivered London area by road in 6 tons or over per 1,000				
Machine-made Pantiles and French pattern Tiles from Lincolnshire district		29	8	0
Hand-made Pantiles Berkshire district		47	10	0
Hand-made Double Roman Bridgwater district		58	13	6
Hand-made 10½ × 6½ tiles Berkshire district		13	1	9
Machine-made 10½ × 6½ Staffordshire district		13	8	9
Hand-made Hip and Valley tiles per doz.		1	8	9
Machine-made Hip and Valley tiles do.		1	6	6
Concrete tiles 10½ × 6½		7	14	6
do. Interlocking (49S)		18	9	6

NOTE.—Breakage in transit, purchasers' responsibility.

SLATES

First-quality Slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual				
24 × 12		124	6	4
22 × 12		103	3	8
22 × 11		93	4	6
20 × 12		88	0	0
20 × 10		82	1	0
18 × 10		59	6	6
18 × 9		52	0	0
16 × 10		48	16	0
16 × 8		38	0	0

NOTE.—Breakage in transit, purchasers' responsibility.

TIMBER

Softwood—				
Joinery quality ... ... Ex. Wharf per standard		£110 to £130		
Carcassing quality ... ... do. „		£98 to £102		
1 in. Tongued and Grooved Flooring do. „		£108	0	0
Hardwood—				
Mahogany—African S.E. ... do.	per ft. cube	1	10	0
do. Honduras do. ... do.	„	3	5	0
Oak European do. ... do.	„	2	5	0
do. Japanese do. ... do.	„	2	10	0
do. English Logs sawn ... do.	„	1	15	0
Teak 8 in. average S.E. ... do.	„	3	5	0
Walnut African Logs sawn ... do.	„	1	5	0

DOORS (in Lots 1-11)

Delivered London area.				
1¾ in. 4 Horizontal Panel Pattern 4 in. deal				
2 ft. 0 in. × 6 ft. 6 in.	each	1	12	0
2 ft. 3 in. × 6 ft. 6 in.	„	1	13	0
2 ft. 6 in. × 6 ft. 6 in.	„	1	14	0
2 ft. 9 in. × 6 ft. 6 in.	„	1	16	6
2 in. do. but top panel open. Pattern 4 × G in deal				
2 ft. 6 in. × 6 ft. 6 in.	„	2	9	0
2 ft. 9 in. × 6 ft. 6 in.	„	2	11	6
2 in. Panel, top panel open. Pattern 2 × G in deal				
2 ft. 6 in. × 6 ft. 6 in.	„	2	1	9
2 ft. 9 in. × 6 ft. 6 in.	„	2	3	6

SUNDRIES

Delivered London area				
1 in. Wood Wool Slabs, 6 ft. 0 in. × 2 ft. 0 in. in quantities of 1 ton (89 yds. to 1 ton)	per yd.		5	8
1½ in. do. (67 yds. to 1 ton)	„		7	4
2 in. do. (52 yds. to 1 ton)	„		8	11½
2½ in. do. (45 yds. to 1 ton)	„		10	3
3 in. do. (39 yds. to 1 ton)	„		11	5½
Quantities under 1 ton add 1d. per ½ in. of thickness.				
½ in. imported insulation Board, quantities over 5,000 sq. ft.	per 100 sq. ft.	2	2	6
¼ in. Hardboard do.	„	2	1	6
⅛ in. do. do.	„	3	2	6
⅛ in. Asbestos Flat Building Sheets	per yd. sup.		3	5
Roofing Felt, 1-ply	„		1	6
do. 2-ply	„		1	9
Best Scotch Glue, in slabs	per ½ cwt.	5	0	0
do. pearl	„	5	5	0
Croid Glue	28 lb.	2	6	0
Cut Nails 3 in. (1-ton lots)	per ton	58	5	0
do. 4 in. and up (1-ton lots)	„	54	15	0
Wire Nails, 3 in. (4-cwt. lots)	per cwt.	2	16	3
do. 4 in. and up (4-cwt. lots)	„	2	12	9

METALS

STEEL JOISTS, ETC.

Basis Joists—				
6 in. × 5 in., 8 in. × 5 in., 8 in. × 6 in., 10 in. × 6 in. 12 in. × 6 in. plain cut to lengths delivered London area	per ton	39	0	0
Extra for sizes				
3 in. × 1½ in. 4 in. × 1¾ in.	„	3	10	0
3 in. × 3 in.	„	2	10	0
4 in. × 3 in., 10 in. × 4½ in.	„	1	10	0
5 in. × 2½ in., 5 in. × 3 in.	„	1	15	0
4½ in. × 1¾ in.	„	3	5	0

					£	s.	d.
5 in. × 4½ in.	7 in. × 3½ in.	13 in. × 5 in. ...	per ton		15	0	
6 in. × 3 in.	24 in. × 7½ in.	... ...	„	2	0	0	
6 in. × 4½ in.	7 in. × 4 in.	8 in. × 4 in. ...	„	1	5	0	
9 in. × 4 in.	10 in. × 5 in.	... ...	}	1	0	0	
12 in. × 5 in.	22 in. × 7 in.	... ...	}				
9 in. × 7 in.	10 in. × 8 in.	12 in. × 8 in.	}				
14 in. × 5½ in.	14 in. × 6 in.	14 in. × 8 in.	}				
15 in. × 5 in.	15 in. × 6 in.	16 in. × 6 in.	} „		10	0	
16 in. × 8 in.	18 in. × 6 in.	18 in. × 7 in.	}				
18 in. × 8 in.	20 in. × 6½ in.	20 in. × 7½ in.	}				
Steel angles average price			„	40	15	0	
Steel tees average price			„	41	15	0	
Fabricated work delivered London—							
R.S. Joists cut and fitted			„	55	10	0	
Compound girders			„	61	0	0	
Stanchions			„	66	10	0	
Compound stanchions			„	70	5	0	
In Roof Work—Trusses and Purlins			„	83	0	0	
Average prices not for awkward work.							
Mild Steel Ferro-Concrete bars to BSS785 ex London							
Stock ⅜ in. diam., and upwards			„	40	6	0	
½ in. diam.			per ton extra	4	7	0	
⅝ in. do.			„	3	7	0	
¾ in. do.			„	2	9	6	
⅞ in. do.			„	1	12	0	

MILD STEEL TUBES

Tubes to BSS1387 and Fittings. List prices and following discounts:

Galvanised Tube—	W.I. Fittings	Malleable Fittings
Class A NET		
Class B + 9½%	Light + 24½%	Malleable List—32½% + 40%
Class C + 25½%	Heavy + 32%	
Black—		
Class A − 21½%		
Class B − 11⅛%	Light + 11⅛%	Malleable List—32½%
Class C + 1⅛%	Heavy + 19½%	

C.I. HALF-ROUND GUTTERS

Delivered London per yd. in 6-ft. lengths

	Gutters	Nozzles	Stop Ends
3 in.	3/4½	3/-	/10
3½ in.	3/8	3/3	/10
4 in.	3/9	3/8	1/3
4½ in.	5/2½	4/1	1/6
5 in.	5/9½	4/5	1/10

C.I.O.G. GUTTERS

3 in.	4/4½	3/11	1/-
3½ in.	4/10½	3/11	1/3
4 in.	5/4½	4/1	1/6
4½ in.	5/9½	4/8	1/10
5 in.	6/4½	5/5	2/1

C.I. RAIN-WATER PIPES

Per yd. in 6-ft. lengths	Pipe	Bends	Branches
2 in.	7/2½	3/8	5/4
2½ in.	7/2½	4/1	7/1
3 in.	8/1½	5/2	7/8
3½ in.	9/3	6/1	9/3
4 in.	10/8	7/4	10/11

L.C.C. COATED SOIL PIPES

2 in.	8/2½	6/4	7/8
2½ in.	8/7½	7/-	9/7
3 in.	9/8	7/8	11/7
3½ in.	10/10	9/7	13/7
4 in.	12/4	10/8	15/8

Above prices for gutters, rain-water and soil pipes for under 5 cwt. lots only. Lots over 5 cwt. see List No. 3300 dated February 1, 1955, plus 2½% and tonnage allowance. 4-ton lots 5 per cent, 2-ton lots 2½ per cent.

L.C.C. COATED DRAIN PIPES

	In 9-fts. cwt. qr. lb.	per yd.	Bends	Branches
4 in.	1 1 17	25/7	17/8	31/3
6 in.	2 0 1	37/11	46/5	74/3

ASBESTOS RAIN-WATER PIPES AND FITTINGS

All less 17½ per cent. discount.

		2 in.	2½ in.	3 in.	4 in.
Pipes 6-ft. lengths ...	per yd.	3/9	4/-	4/10	6/5
Shoes	each	2/5	2/8	3/2	4/3
Single Branches ...	„	3/9	4/6	5/4	7/6
Bends square or obtuse	„	2/8	2/11	3/9	5/4
Swan Necks 4½ in. proj.	„	2/11	3/9	4/3	5/11
do. 6 in. do.	„	3/2	3/9	4/10	6/5

ASBESTOS O.G. GUTTERS AND FITTINGS

		4 in.	4½ in.	5 in.	6 in.
Gutters 6-ft. lengths ...	per yd.	3/7	3/11	4/8	5/7½
Drop ends	each	2/10	3/4	3/10	4/7
Stop Ends	„	/10	/11	1/-	1/2
Angles	„	2/11	3/5	4/1	4/10
Nozzles	„	2/10	3/4	3/10	4/7
Union Clips	„	1/5	1/8	2/1	2/5

ASBESTOS HALF-ROUND GUTTERS AND FITTINGS

		3 in.	4 in.	4½ in.	5 in.	6 in.
Gutters 6-ft. lengths ...	per yd.	2/6	2/11½	3/0½	3/7	5/-
Drop ends	each	2/1	2/5	2/8	2/11	4/3
Stop ends	„	/9	/10	/11	1/-	1/2
Angles	„	2/5	2/8	2/11	3/2	4/3
Nozzles	„	2/1	2/5	2/8	2/11	4/3
Union Clips	„	1/-	1/1	1/2	1/4	2/-

METALS—*continued*

	Per ton basis in London £ s. d.
Iron—Staffordshire Crown Merchant Quality	41 17 6
Mild Steel Bars	37 14 0
Mild Steel Hoops	39 1 0

	Ex Merchant's Stock per ton Two-ton lots £ s. d.
Soft Sheets C.R. and C.A.—	
20 gauge	49 6 0
24 gauge	51 16 0
26 gauge	54 16 0
Galvanised Corrugated sheets 6 ft. to 9 ft.—	
20 gauge	56 6 6
24 gauge	59 16 6
26 gauge	65 1 6
Galvanised Flat sheets C.R. and C.A.—	
20 gauge	57 16 6
24 gauge	61 6 6
26 gauge	66 11 6

Plumbers' Brass Work, Copper, Zinc, etc.

Delivered in London area.

All per doz.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Screwdown bib cocks Crutch head for iron	87/–	128/8				
Toilet bib cocks for iron	109/–	158/5				
Screwdown stop cocks for iron	66/–	95/9	188/–	363/–	522/6	917/6
do. with two unions for lead	89/–	132/–	234/4	472/–	623/6	1389/6
Double nut boiler screws	18/8	26/5	47/6	48/6	67/–	93/6
Heavy Croydon ball valves	77/–	193/6	312/5	568/8	734/10	—
Plumbers' union brass lead to iron	19/6	23/6	38/6	52/10	70/6	165/–
	1½ in.	1¾ in.	2 in.	3 in.	3½ in.	4 in.
Caps and screws	33/–	40/8	59/6	92/5	118/10	155/3
Brass sleeves		31/11	31/11	56/2	74/10	91/5
	½ × 6 lb.	1 × 6 lb.	1½ × 6 lb.	2 × 7 lb.	3 × 7 lb.	
Lead P. trap with brass cleaning screws	63/6	79/6	127/–	217/3		
Lead S. trap do.	77/–	95/–	156/3	281/–		

Solder	s. d.
Plumbers' per lb.	3 5
Tinmen's per lb.	4 2
Blow pipe per lb.	4 3

Copper tubes BSS 659/1944 on the basic price of 35d. per lb. plus gauge and manufacturing extras as follows. Minimum quantities, 3 cwt.

	Extra d.	Total per lb. d.
⅛ in. × 19 gauge	12½	47½
¼ in. × 19 „	11½	46½
1 in. × 18 „	9⅝	44⅝
1¼ in. × 18 „	9	44
1½ in. × 18 „	9	44
2 in. × 17 „	10¼	45¼

	£ s. d.
Rolled Copper sheets up to 48 in. wide, basic price plus gauge and manufacturing extras per ton	365 15 0
Sheet Zinc 10 gauge (25 SWG) 5 cwt. lots upwards per cwt.	8 6 3
do. 12 gauge (23 SWG) do. „	8 4 6
do. 14 gauge (21 SWG) do. „	8 3 6
Brass tubes basic price, plus gauge and manufacturing extras per lb.	2 4½

LEAD SHEET AND PIPES

Basis selling price in minimum one-ton delivery to one address in London or Home Counties.

	£ s. d.
Lead Sheet, English, 3½ lb. substance and upwards per ton	140 5 0
Lead Water Pipe in coils „	141 10 0
Lead Soil Pipe 10 ft. or over 2 in. to 4 in. dia. „	143 0 0
do. over 4 in. dia. „	145 0 0
Lead Gas or Untinned Compo pipe „	143 0 0
Extras over Basis for quantities under 1 ton	
5 cwt. and under 1 ton per cwt.	2 0
3 cwt. do. 5 cwt. „	4 0
1 cwt. do. 3 cwt. „	6 0
Smaller quantities than 1 cwt. priced specially.	
Supplying sheet lead and lead pipe to less than basis weights and cutting to sizes less than basis charged extra according to current trade schedule.	
Allowance for Old Lead, collected £99 0s. 0d. per ton weighed at buyer's works.	

PLASTER, etc.

	£ s. d.
Coarse Pink in 1-ton loads and over Delivered on Site per ton	7 6 6
do. White do. do. „	7 14 3
Sirapite Coarse do. do. „	7 9 0
do. Fine do. do. „	7 17 0
Blue Lias Lime in 6-ton loads „	6 9 6
Hydrated Lime do. „	5 12 6
Lump Lime do. „	5 2 0
White Keen's or Parian Cement in 1-ton loads „	10 4 0
Pink Keen's or Parian Cement in 1-ton loads „	9 18 6
Granite Chips in 6-ton loads „	2 6 3
Hair per cwt.	4 17 6
Gypsum Plaster Lath or Base Board ⅜ in. thick 600 yds. and over in one delivery. Delivered site per yd.	2 3
1,200 yds. „	2 2½
Gypsum Plaster Wall Boards, 3 and 4 ft. wide, 6 to 12 ft., ⅜ in. thick, 600 yds. and over in one delivery. Delivered site „	2 6
1,200 yds. „	2 5½

PAINT AND DISTEMPER

Delivered London area.

	£ s. d.
Ceiling Distemper per cwt.	1 7 6
Washable Distemper „	5 5 0
Gloss Paint per gal.	2 10 0
Snowcem cement paint (in 1 cwt. drums) per cwt.	3 11 0

Lead Products and Oils.

	£ s. d.
Ground White Lead, 1 cwt. kegs per cwt.	8 18 0
Genuine White Lead Paint, 1-19 gal. lots in 1 gal. tins per gal.	3 2 0
Genuine Red Lead, Dry, 1 cwt. keg per cwt.	6 19 3
Genuine Linseed Oil Putty, 1 cwt. keg „	2 11 0
Size XD quality, 28 lb. per tin	9 0
Raw Linseed Oil (5 gal.) Drums extra per gal.	12 0
Boiled Linseed Oil (5 gal.) do. „	12 6

Sundries.

	£ s. d.
Turpentine substitute (5 gal.) drums extra „	5 6½
do. do. (40 gal.) do. do. „	4 8½
Solignum, Brown (5 gal. cans) Exterior „	6 6
Creosote (40 gal. barrels) „	2 0
Paste Powder (1 lb. packets) per lb.	1 6
White Lining Paper per piece	1 0

VARNISHES, etc.

Delivered London area.

	£ s. d.
Oak Varnish, Outside or Inside per gal.	1 12 6
Oak Pale Copal do. „	1 18 0
Hard Drying Oak for Inside „	2 0 0
Crystal Paper Varnish do. „	2 0 0
Eggshell Flat Varnish do. „	2 14 0
Finest Carriage Varnish „	2 10 0
Front Door Varnish „	2 0 0
Japan Gold Size „	1 12 6
Black Japan „	1 14 0
Brunswick Black „	1 10 0
Berlin Black „	1 5 0
Terebene „	1 8 0
Knotting (1 gal. bottles free) „	2 2 0
French and Brush Polish (do.) „	1 18 0

GLASS

Delivered London area.

	Per ft. super s. d.
18 oz. Sheet Glass Ordinary Glazing Quality. Cut Sizes	5½
24 oz. „ „ „ „ „ „	7½
26 oz. „ „ „ „ „ „	10
32 oz. „ „ „ „ „ „	1 1
⅛ in. Rolled Plate	9
⅛ in. and ¼ in. Rough Cast	1 0
⅛ in. Figured Rolled and Cathedral, Standard patterns : White	9
do. Standard Tints	1 4½
do. Special Tints	2 9
⅛ in. Pinstripe, Hammerstripe, Reeded, Reedlyte and Luminating	1 1
¼ in. Wired Cast	1 2
¼ in. Georgian Wired Cast	1 2½

Hollow Glass Blocks—	Each
P.B.2 5½ × 5½ × 3⅞ in.	2 9
P.B.3 7½ × 7½ × 3⅞ in.	4 2
P.B.32 7½ × 7½ × 3⅞ in.	4 2
Radiused Corner Blocks to match up with—	
P.B. 2	5 3
P.B. 3	6 9
P.B. 32	6 9

⅛ in. Polished Plate Glass, G.G. Quality—	Per ft. super
In plates not exceeding 2 ft. sup.	3 7
„ „ „ 5 ft. sup.	4 5
„ „ „ 45 ft. sup.	5 1
„ „ „ 100 ft. sup.	5 6

⅛ in. Polished Plate, extra sizes, *i.e.* plates exceeding 100 ft. sup. or 160 in. one way or 96 in. both ways. G.G. quality —Not exceeding 135 ft. sup. or 250 in. one way or 135 in. both ways 8 4
Not exceeding 180 ft. sup. or ditto 11 3
Not exceeding 200 ft. sup. or ditto 16 0
Plates exceeding 200 ft. sup., prices on application.
Substances other than ⅛ in. Polished Plate at Special Prices.

Quantity Tariff—Sheet and Sundry Glass.

The following prices apply to minimum quantities of one size and one pattern delivered by the manufacturer to one site at one time.

Description of Glass	Minimum quantity	Per ft. super s. d.
18 oz. sheet O.Q.	3,000	4½
24 oz. „ „	2,000	6½
26 oz. „ „	2,000	7½
32 oz. „ „	2,000	10½
⅛ in. Rolled Plate	1,000	7½
⅛ in. Figured Rolled and Cathedral Standard Patterns, White	1,000	7½
⅛ in. Pinstripe, Hammerstripe, Reeded, Luminating and Spotlyte	1,000	10½
⅛ in. and ¼ in. Rolled Plate or Rough Cast	2,000	10½
¼ in. Wired Cast, Hexagonal	2 000	11½
¼ in. Georgian Wired Cast	2,000	1 0½

The Builder

CURRENT RATES OF WAGES

AS FROM APRIL 18, 1955. **(Every endeavour is made to ensure accuracy but we cannot be responsible for errors.)**

KEY TO SCHEDULE OF GRADE RATES.

Grade Classification.	A	A1	A2	A3
Craftsmen	4/-	3/11½	3/11	3/10½
Labourers	3/5½	3/5	3/4½	3/4

Town.	*Grade.*
Aberavon	A
Aberdare	A
Abergavenny	A
Abingdon	A2
Accrington	A
Addlestone	A
Aldeburgh	A2
Aldershot District	A2
Alfreton U.D.	A
Alnwick	A1
Altrincham	A
Amble	A1
Amersham	A1
Ammanford	A
Andover	A2
Ardingly	A2
Arundel	A2
Ascot	A2
Ashby-de-la-Zouch U.D.	A
Ashby Woulds U.D.	A
Ashford (Kent)	A2
Ashford (Middlesex)	A
Ashington	A
Ashtead	A
Ashton-under-Lyne	A
Aspatria and Brayton	A2
Atherstone R.D. (parts of)	A
Aylesbury	A2
Aylesby (Yorks)	A
Aylesham	A2
Bagshot	A2
Bakewell U.D.	A2
Banbury	A2
Barnard Castle U.D.	A
Barnoldswick U.D.	A
Barnsley	A
Barrow-in-Furness	A
Barrow-upon-Soar R.D. (exc. Thrussington A2)	A
Barry	A
Basford R.D.(exc. Willough-by-on-the-Wolds A1)	A
Basingstoke	A1
Bath	A
Batley	A
Baxterley	A1
Beaconsfield & District	A1
Beamish	A
Bearl	A
Bearpark	A
Beccles	A2
Bedale R.D.	A
Bedford	A
Bedlington	A
Bedwas	A
Beeston & Stapleford U.D.	A
Belper U.D.	A
Belton	A
Berkhamsted	A
Berrington	A1
Berwick District	A
Beverley	A
Bexhill-on-Sea	A2
Biggleswade	A2
Billericay	A
Billing	A
Billingham U.D.	A
Bilsthorpe	A
Birchington	A2
Birkenhead	*
Birmingham C.B.	†A
Bishop Auckland	A
Bishop's Stortford	A
Bispham	A
Blackburn	A
Blackpool	A
Blackwell R.D.	A
Blaydon U.D.	A
Blidworth	A
Blyth	A
Bognor Regis	A2
Boldon U.D.	A
Bolsover U.D.	A
Bolton	A
Bourne End	A1
Bournemouth District	A
Bracknell	A2
Bradford	A
Bradford-on-Avon	A2
Braintree	A1
Breconshire, County of...	‡A2
Brent Knoll	A2
Brentwood	A
Bridlington	A
Brierfield	A
Brighouse	A
Brighton	A
Bristol	A
Broadstairs	A2
Bromsgrove U.D.	A
Brough	A
Broughton (Cheshire)	A
Buckley	A
Bungay	A2
Burnham-on-Crouch	A2
Burnley	A
Burton-on-Trent C.B.	A
Bury	A
Bury St. Edmunds	A1
Buxton	A
Byfleet	A1
Calder Valley	A
Cambridge	A
Cannock U.D.	A
Canterbury	A2
Cardiff	A
Cardiganshire,County of	‡A2
Carlisle	A
Carmarthenshire,Cnty of	‡A2
Caernarvonshire, Cnty. of	‡A2
Carnforth	A
Castleford	A
Caterham	A
Chapel-en-le-Frith	A
Charmy Down	A
Chatham & District	A1
Cheadle (Staffs) R.D.	A
Chelmsford	A
Cheltenham	A
Chepstow	A1
Chertsey	A
Chester	A
Chesterfield M.B.	A
Chesterfield R.D.	A
Chester-le-Street U.D.	A
Chichester	A2
Chippenham (inc. Chippen-ham Within and Harden-huish)	A2
Chorley	A
Clacton	A1
Cleethorpes	A
Clevedon	A1
Cleveleys	A
Clitheroe	A
Coalville U.D.	A
Cobham (Surrey)	A
Colchester	A
Colne	A
Colwyn Bay	A1
Congleton	A1
Consett	A
Conway	A1
Cornwall, County of	‡A2
Coventry C.B.	A
Cranbrook	A2
Cranleigh	A2
Crawley (Sussex)	A1
Crewe	A
Cromer	A1
Crowborough	A2
Cuckfield	A2
Dalton-in-Furness	A
Darlington District	A
Darwen	A
Deal	A2
Denbigh Town	A2
Derby C.B.	A
Devizes	A2
Devon, County of	‡A2
Dewsbury	A
Didcot	A2
Diss	A2
Doncaster C.B.	A
Dorking	A
Dorset, County of (except-ing Poole, Swanage and Wimborne A1)	A2
Dover	A2
Dovercourt	A
Driffield U.D.	A1
Droitwich M.B.	A
Dudley M.B.	A
Dunstable	A
Durham City	A
Eastbourne	A
E. Glam. & Mon. Val.	A
East Grinstead District	A2
Eastwood (Notts.) U.D.	A
Ebbw Vale & District	A
Edenbridge	A2
Ely	A2
Epping	A
Exeter	A
Fakenham	A2
Falmouth	A2
Fareham	A
Faversham	A2
Felixstowe	A1
Filey U.D.	A
Fleetwood	A
Flint	A
Folkestone	A2
Frinton	A1
Frome	A1
Gainsborough U.D.	A
Gateshead	A
Gillingham (Kent)	A1
Glossop	A
Gloucester	A
Gloucestershire, Cnty. of	‡A2
Godalming	A2
Goole M.B.	A
Gosport	A
Grantham M.B.	A
Gravesend	A
Great Yarmouth	A
Grimsby C.B. & R.D.(part)	A
Grimsby R.D. (remainder)	A2
Guildford District	A2
Guilsborough	A1
Guiseley	A
Halesowen M.B.	A
Halifax	A
Halstead	A2
Haresfield	A1
Harlow	A
Harpenden	A
Harrogate	A
Hartlepool	A
Harwich	A
Haslemere	A2
Hastings	A2
Hat. eld (Herts.)	A
Haywards Heath	A2
Hemel Hempstead	A
Henley-on-Thames	A2
Hereford	A2
Herefordshire, Cnty. of	‡A2
Herne Bay	A2
Hertford	A
Hexham U.D.	A
Heysham	A
High Wycombe	A1
Highworth	A2
Hinckley U.D.	A
Hitchin	A
Hoddesdon	A
Horley	A2
Horsham	A2
Horwich	A
Huddersfield	A
Hull	A
Hunstanton	A2
Huntingdon (Staffs)	A
Ilkley	A
Ingatestone	A1
Ipswich	A
Isle of Sheppey	A2
Isle of Thanet	A2
Isle of Wight	A2
Jarrow M.B.	A
Keighley	A
Kendal	A
Kenilworth U.D.	A
Kettering M.B.	A
Keynsham	A
Kidderminster M.B.	A
King's Lynn	A1
Kingskerswell	A1
Kingsteignton	A1
Kirkham	A
Knaresborough U.D.	A
Knowle	A1
Lancaster	A
Leamington M.B.	A
Leatherhead	A
Leeds	A
Leicester C.B.	A
Leighton Buzzard	A1
Letchworth	A1
Lewes	A2
Lichfield M.B.	A
Lincoln C.B.	A
Littlehampton	A2
Liverpool	*
Llandudno	A1
Llanelly	A
London	*
Long Eaton	A
Loughborough M.B.	A
Louth M.B.	A2
Lowestoft	A
Loxton	A2
Luton	A
Lyneham (Devon)	A2
Macclesfield	A
Maidenhead	A1
Maidstone	A
Maltby	A
Maldon (Essex)	A1
Malvern U.D.	A1
Manchester	A
Manningtree	A1
Mansfield M.B.	A
March	A2
Margate	A2
Market Harborough U.D.	A
Maryport	A
Matlock U.D.	A1
Melksham	A2
Melton Constable	A2
Melton Mowbray U.D.	A1
Merthyr	A
Middlesbrough	A
Middleton	A
Middlewich	A
Milford Haven	A1
Morecambe	A
Morley	A
Mundesley	A2
Nantwich	A
Nelson	A
Newark-on-Trent R.D.	A1
Newbury	A2
Newcastle-on-Tyne	A
Newcastle-under-Lyme	A
New Forest District	A1
Newmarket	A1
Newport, Mon.	A
Newport Pagnell	A2
Newton Abbot	A1
Northallerton Dist.	A
Northampton C.B.	A
North Shields	A
Norton Radstock	A1
Norwich	A
Nottingham C.B.	A
Nuneaton M.B.	A
Oakham U.D.	A2
Oldham	A
Ongar	A
Ormskirk	A
Ossett and Horbury	A
Oxford	A
Oxted	A1
Paignton	A1
Peterborough	A
,, Soke	A1
Pickering	A3
Plymouth	A
Pontefract	A
Pontypridd District	A
Portishead	A
Portland Stoneyards	A
Portsmouth	A
Port Talbot	A
Preston	A
Pudsey	A
Pulborough	A2
Radnorshire, County of	‡A2
Ramsgate	A2
Rayleigh	A
Reading	A
Redcar B.	A
Redditch U.D.	A
Redhill and Reigate	A
Ripon	A3
Rochdale	A
Rochester	A1
Rotherham	A
Rugby M.B.	A
Saffron Walden	A2
St. Albans	A
St. Helens	A
St. Neots	A2
Salisbury City	A2
Salisbury Plain	A2
Sawbridgeworth	A
Saxmundham	A2
Scarborough	A
Scunthorpe	A
Selby	A
Sevenoaks	A1
Sheerness	A2
Sheffield	A
Shipley	A
Shoeburyness	A
Shoreham	A
Shrewsbury M.B.	A
Sittingbourne	A2
Skegness U.D.	A1
Skipton U.D.	A
Sleaford U.D.	A2
Slough	A
Smethwick C.B.	†A
Snettisham	A2
Somerset, County of	‡A2
Southampton	A
Southend-on-Sea Dist.	A
Southport	A
South Shields C.B.	A
Spalding U.D.	A2
Stafford M.B.	A
Staines	A
Stamford M.B.	A1
Stantonwick	A
Stevenage	A
Stockport	A
Stockton R.D.	A
Stockton-on-Tees	A
Stoke-on-Trent C.B.	A
Stoke Orchard	A1
Stourbridge M.B.	A
Stourport U.D.	A
Stowmarket	A1
Stratford-on-Avon M.B.	A
Sunderland District	A
Sunningdale	A1
Sutton Coldfield M.B.	A
Swaffham	A2
Swanage	A1
Swansea	A
Swindon	A
Swinton U.D.	A
Tamworth M.B.	A
Tenterden	A2
Tewkesbury	A1
Thames Haven	A
Thetford	A2
Thorpe Bay	A
Thurrock U.D.C. Area	A
,, North of, to Billericay	A
Tilbury	A
Todmorden	A
Tonbridge	A1
Torquay	A1
Totnes	A1
Trowbridge	A2
Tunbridge Wells	A1
Tynemouth C.B.	A
Uppingham (Salop)	A1
Uttoxeter U.D.	A2
Wakefield	A
Wallsend B.	A
Walsall C.B.	A
Walsden	A
Walton-on-Naze	A1
Ware	A
Warminster	A2
Warrington	A
Warwick M.B.	A
Wellington U.D.	A
Wells (Norfolk)	A2
Welwyn	A
Welwyn Gar. City	A
West Bromwich C.B.	A
Westbury	A2
Westcliff-on-Sea	A
Westerham	A1
Weston-super-Mare	A1
Weybridge	A
Weymouth	A1
Whitby U.D.	A1
Whitstable and District	A2
Wickford	A
Widnes	A
Wigan	A
Wigton	A2
Willington	A
Wilmslow	A
Wilts. County of	‡A2
Winchester	A1
Windermere	A2
Windsor and Eton	A
Wisbech	A2
Witham	A1
Woking (District)	A1
Wokingham	A2
Wolverhampton C.B.	A
Woodbridge	A2
Worcester C.B.	A
Workington	A
Worksop M.B.	A
Worthing	A2
Wrexham (incl. Cefn)	A
Wroughton	A1
Wylam	A
Wymondham	A2
York	A

For Birkenhead, Liverpool and London the rates are:—Craftsmen, 4s. 1½d.; Labourers, 3s. 7d. In the case of London the rate beyond the 12-mile radius is:—Craftsmen, 4s. 1d.; Labourers, 3s. 6½d. †Plus 2d. per working day. ‡ This is the County rate and applies except where higher grades are stated.

NOTE.—Carpenters and Joiners providing own tools when employed in establishments operating under the Supplementary Rules for Woodworking Factories and Shops, receive 2d. per day; when employed on other building industry work, 4d. per day.

WOMEN'S RATES.—In all districts throughout the country the rate of wages for women engaged in craft processes is 3s. 1½d. per hour. Women engaged on work other than craft processes, 2s. 9½d. per hour.

For Building Trade Wages in Scotland see page 692.

NEWS IN BRIEF

HOUSING AT TENTERDEN, KENT

In illustrating a scheme of old people's bungalows at Tenterden, Kent, in our issue of April 8, Mr. G. L. Turner was wrongly described. He is Surveyor to the Borough of Tenterden. We regret the error.

BTC APPOINTMENT

The British Transport Commission has announced that Mr. R. W. Boorman has been appointed as Assistant Estate and Rating Surveyor at BTC Headquarters.

LIBRARY GROUP MEETING

The next meeting of the RIBA Library Group, at the Royal Institute of British Architects, 66, Portland-place, W1, will be on Monday, April 25, at 6 p.m. Dr. Helen Rosenau will introduce an evening on "The Scope and Limits of Vitruvian Influence in Town Planning."

FERRYBRIDGE POWER STATION

With reference to the article on "New Power Stations" contained in our issue of March 11, we regret that the contractors for the Ferrybridge "B" power station were incorrectly given. They are Messrs. George Wimpey and Co., Ltd., and not Messrs. Higgs and Hill, as previously stated. The architects for the scheme are Messrs. Watson and Coates, F/ARIBA, 6, Gray's Inn-square, WC1.

DESIGNERS' CONFERENCE

The British Colour Council's thirteenth designer's conference is to be held by the Interior Decoration and Design Division in London from May 2 to 6 this year. These dates coincide with the first week of the British Industries Fair, which will be visited during the conference. At the same time as the conference there will be an exhibition at Portman-square showing work executed by designers attached to member firms. Non-members should write to the British Colour Council, 13, Portman-square, W1, for details.

JOINERY FEDERATION AGM

At the annual general meeting of the Joinery and Woodwork Employers' Federation, which took place recently at the Connaught Rooms, London, Mr. M. van Westerborg, managing director of Jayanbee Joinery, Ltd., was appointed chairman. Messrs. H. J. E. Ripper, JP, and B. Pratten were re-elected vice-chairmen, and Mr. H. Howarth, honorary treasurer. The following were re-elected as members of the Executive Committee: Messrs. W. E. Adams, JP, James B. Austin, JP, S. John Bassett, E. A. Busby, K. G. Cook, C. H. Cuttriss, ACIS, J. Duxbury, C. Jamieson Harvey, N. H. H. Newsum, C. W. T. Pochin, Tom M. Scotney.

THE HANDLING OF MATERIALS

Elimination of unnecessary handling, so that materials could flow uninterrupted to and from workers, could raise productivity 15 per cent. without any change in the existing productive machinery of British industry, according to "The Handling of Materials," which has been published (price 9d.) by the British Productivity Council, 21, Tothill-street, London, SW1, as No. 3 in its Action Pamphlets series. The pamphlet sets out the advantages to be gained from good handling practices and the principles which should be followed. Particular stress is laid on the desirability of studying any job and finding means of reducing handling to a minimum before consideration is given to ways in which it can be mechanised. Brief details are also included of a selection of equipment, and an appendix contains notes of printed matter and films that may be useful for further information.

CHANGE OF ADDRESS

The offices of the National Smoke Abatement Society are now situated at Palace Chambers, Bridge-street, SW1. (Tel.: Trafalgar 6838-9).

DOG PATROLS

Dog patrols are being used to protect flats now being built at Staplehall Farm Estate, Birmingham. A spokesman of Wates, Ltd., the builders, says: "Considerable damage and pilfering goes on after working hours on building sites and we find that the saving effected by the use of dogs more than covers the cost to employ them."

A COMMEMORATIVE SCHOLARSHIP

The work of Mr. W. G. Sutherland, who until his retirement last year had been editor of "*The Journal of Decorative Art*" (now "*Painting and Decorating*") for 40 years, has been commemorated in a scholarship just founded in Manchester for young decorators. Mr. Sutherland served on the Manchester Art Galleries Committee, and was for 18 years a governor of the Royal College of Art, Manchester.

DONCASTER TECHNICAL SCHOOL

Decision to Place Contract with Works Department Rescinded

DONCASTER TOWN COUNCIL on April 13 rescinded a minute accepting a £169,000 tender for the building of the new Technical High School for Boys by its Works Department, and accepted a tender from a private company. It was stated that the Council had "no alternative" but to do this. The contract is now to be let to J. Dixon (Doncaster) Ltd., whose tender of £169,192 compared with the £169,267 of the Works Department.

On March 1 the Council had confirmed the Education Committee's recommendation to grant the contract to the Works Department. It was then stated that the tender was not the lowest, but was "almost the lowest." Approval was subject to verification of quantities and the approval of the Minister of Education.

The Doncaster and District Federation of Building Trades Employers protested to the Council and the local member of Parliament, Mr. Anthony Barber. They were told that their National representatives had seen the Minister of Education. A Doncaster Education Committee deputation went to London a few days later.

At their meeting on April 13, the Council considered a report from the deputation, and the Borough Architect also submitted a report. The Council rescinded the former minute, and accepted the private contract, subject to its being satisfactory to the Town Clerk.

TRADE NEWS

CHANGE OF ADDRESS

J. Jarvis and Sons, Ltd., building and civil engineering contractors, have recently completed the building of a new branch office and depot at 77, Dane-road, Sale, Manchester, and will be moving there tomorrow (April 23). The firm's head office remains at 239, Vauxhall Bridge-road, London, SW1.

MATERIALS SHOWROOM

New showrooms at Northampton have recently been opened by Travis and Arnold, Ltd. The purpose of this showroom is to show customers that, in addition to their main trade as timber suppliers, the company are also concerned with the distribution of general building materials. Miss Moira Lister performed the opening ceremony.

OFFICIAL OPENING

The new showrooms of Decorative Painting Contractors, Ltd., were opened at 179-183, Staines-road, Hounslow, on April 1. The opening ceremony was carried out by the celebrities Freddie Mills and Ben Lyon. Displayed in the showrooms are a range of building materials and equipment, including paints, wallpaper and kitchen equipment.

NEW SHOWROOMS

The official opening of their new showrooms at 167-8 Tottenham Court-road, W1, is to be held to-day (April 22) by the Norlond Service (Builders' Merchants), Ltd. These new showrooms have been instituted to help those people concerned with building, renovating or redecorating, and a range of fireplaces, heating appliances, boilers, bathrooms, wallpapers and kitchen equipment will be on display.

LIGHTING AND THE ARCHITECT

An exhibition with the title "Lighting and the Architect" opened at the Mazda lamp and lighting showroom at Crown House, Aldwych, WC2, on April 18. It is intended to interest architects and engineers who are concerned with lighting systems which may be integrated with the fabric of the buildings in which they are used. This exhibition demonstrates some of the principal lines of approach followed by BTH engineers working to provide lamps, lighting fittings, control gear and special equipment so designed that they will combine with the many materials and products used in the building industry. An example of this conception is the Mazda "Module" lighting fitting, which is made primarily for use in suspended ceilings. The central feature of the exhibition deals with a method of providing artificial lighting in a shell concrete roof. It shows the construction of an opening which can be formed in a shell concrete roof to house seven 5-ft. fluorescent lamps and their control gear, with access from above. The exhibition remains open until the end of August (Mondays to Fridays only).

PERSONAL COLUMN

SIR JOHN HATHORN HALL, GCMG, DSO, OBE, MC, has been appointed chairman of the Limmer & Trinidad Lake Asphalt Co., Ltd.

T. & W. FARMILOE, LTD., 19, Rochester-row, SW1, have announced the appointment of MR. PETER FORBES as a sales manager (architectural and contracts).

MR. J. RUTTER has been appointed a technical representative of the Jenolizing Co., Ltd., 13-17, Rathbone-st., W1, and is at present undergoing intensive training in their laboratories.

OVERSEAS BUILDING

[*From Our Own Correspondents*]

Australia.—Houses and flats are being built in Australia at the rate of between 75,000 and 80,000 a year, and the building industry is now operating at its highest peak. In the three months from July to September last year new buildings worth £74m. were completed. This was £4m. more than in the previous quarter.

* *Ceylon.*—Dr. Francis W. Godwin, adviser on industry and mineral resources in the World Bank team which visited Ceylon in 1951, returned to the island on February 8 to direct the new Institute of Scientific and Industrial Research on its formation. . . . The Director of Civil Aviation has submitted further proposals to the Government for the improvement of Ratmalana airport. His scheme envisages a total expenditure of Rs.21m. over six years and includes Rs.12m. for the construction of a new runway.

Greece.—The Greek State Railways have put to the Minister of Communications a five-year plan for the improvement and extension of the railway network. This includes the extension of the Kozani line to Siatista, the building of a line from Salonika to Amphipolis and the broadening of the line from Larissa to Volos to a standard gauge. . . . About £1m. has been allocated by the Ministry of Communications and Public Works for 700km's of asphalt roads.

Kenya.—Works totalling over £2m. have been recommended by the Transport Advisory Council and the Railways and Harbours Committee of Kenya. Among the new works £485,000 has been recommended for housing of which £86,000 has been allocated to Mombasa, £70,000 to Nairobi, and £111,000 to Dar-es-Salaam and Tanga. Water improvements costing £41,000 have been recommended for locomotive supplies at Eldoret and Tanga stations and at the Kenya lake port of Kisumu. A sum of £48,000 has been allocated for new lighters to be built at Kisumu. Large-scale workshops improvements have been recommended for Nairobi at an estimated cost of £330,000. The Harbours Committee has announced that the latest revised estimated cost of the port improvements at Mombasa is £4,955,000, an increase of £583,000 on the original estimate.

The YWCA in Nairobi has decided to build a hostel in the city for educated African girls. . . . Plans to develop Kenya's premier seaside resort of Malindi, 80 miles north of Mombasa, as an attraction for holidaymakers have been outlined by a spokesman of East African Airways. It is hoped that many of the 70,000 Rhodesians who now spend holidays in South Africa may go to Malindi. First priority in this development will be the levelling and lengthening of the present airstrip to enable it to take heavier aircraft.

The fourth phase of the Railway Administration's extensive remodelling and development plan for Nakuru, the farming centre of the Rift Valley Province, is about to commence. This will be a new station, passenger line and extension of marshalling yards. The third phase costing £72,000 which consisted of a rail-over-road bridge and a new administrative building has just been completed. . . . Nairobi's building figures keep going up. Last year the value of building plans passed by the City Council was £4,436,000 — more than £100,000 over the 1950 figure. The City Council has details of a number of schemes some of which will be started this year.

Peru.—The contract for the second stage of the Quiroz irrigation project in Peru has been awarded to the US firm of Morrison Knudsen at a price of £24,700,000 dollars. This stage consists of the construction of a dam at San Lorenzo in Northern Peru to provide for the irrigation of 125,000 acres. Though no date for the completion of the work has been announced, it is understood that this will be about three years from the date of starting work.

Panedile Peruana SA, the Peruvian subsidiary of the Edison Co. of Milan, is studying the possibility of establishing a plant for the manufacture of artificial fertilisers using the excess capacity of the Vilcanota power plant which the Government hopes to build near Cuzco. Plans are also being drawn up for the manufacture of anhydrous ammonia which may necessitate the building of another factory. . . . A survey team has visited Peru to draw up plans for the modernisation of the ports of Salverry, Pisco and Paita.

South Africa.—Lately, attention has been devoted to the question of damming the Orange River for irrigation purposes. The Minister of Lands pointed out that great interest has been aroused in a plan which has recently been submitted and it is hoped that the British Government will co-operate in this scheme said to cost in the region of £100m.

The plan, so far mentioned, is to build a dam near Bethulie, in the Southern Free State, and finally to allow the passage of water into the Fish and Sunday River Valleys. The plan is divided into eight stages. The key to the whole scheme, however, lies in Basutoland, where the river rises, and diplomatic negotiations will have to be concluded before a start can be made on what will be one of the largest schemes of this kind in the world.

Turkey.—A new 11-storey Hilton Hotel will be opened shortly in Istanbul, Turkey. This will be the largest and most modern hotel in Eastern Europe and the Middle East. Built with funds provided by the Turkish Pension Fund Administration, operating capital for the new hotel came from Hilton Hotels International, a subsidiary of Hilton Hotels Corp., USA.

* From the Board of Trade Special Register Information Service.

NATO TENDERS

The North Atlantic Treaty Organisation has publicised a number of tenders which are being invited for construction work in several West European countries. In Italy, airfield construction work valued at £950,000 is open to tender. Full details are available from Ministero Difesa Aeronautica, Direzione Generale Demanio-Uff, Studie-Viale Castro Pretorio, Rome.

Petroleum oil storage depots are to be constructed at Chalons and Brienne-le-Chateau airfields in France at a cost of £20,000 each. Details from Ministere des Forces Armees, Service de l'Infrastructure de l'Air, 26, Boulevard Victor, Paris.

In Denmark tenders are open for the construction of five concrete towers of heights ranging from 20 to 55 metres containing in the base of the tower rooms for radar and power equipment. The towers are valued at £1,500 to £12,000 each. Also required are seven or more operations buildings, approximately 400 sq. metres in total, costing about £20,000. Information is available from Soevaernets Televaesen, Kloevermarksvej, Copenhagen S.

Airfield construction works, costing about £78,000, are to be undertaken in Belgium. Details from Ministere de la Defense Nationale de Belgique, Service General de Constructions Militaires, Direction Pistes et Routes, Caserne Prince Baudouin, Place Dailly, Bruxelles, Belgium.

ART GALLERY FOR RHODESIA

Rapid progress is now being made towards the establishment of a national art gallery for the Federation of Rhodesia and Nyasaland to be known as the Rhodes Centenary Gallery. The Board of Trustees announced recently their proposals for the early erection of the Gallery on a site, given by the City of Salisbury, on the north side of King's-crescent.

The scheme to establish the Gallery had its beginnings in a bequest of £30,000 by the late Sir James McDonald. This bequest has now accumulated to a sum of £41,000. The Board of Trustees has also announced donations of £25,000 each by Major and Mrs. S. L. Courtauld, of £13,500 from the British South Africa Company and from the four copper-mining companies of N. Rhodesia, which have each covenanted to give £5,000 over a period of seven years.

With the money thus available, a start is to be made with the scheme this year.

The building has been designed by Messrs. H. G. Montgomerie, ARIBA and P. Oldfield, ARIBA. It will cost £150,000, but the trustees may be obliged to limit the work at first to a cost of £105,000, unless sufficient funds are available to complete the building. The sum of £105,000 will permit the erection of the shell of the complete structure, and the finishing of the adminstration rooms, art library, entrance hall, main exhibition hall, a number of small galleries, and storerooms as well as the director's living quarters. It is proposed to put the plans out to tender at the end of May and building operations are likely to commence about August.

BRIDGES IN PAPUA-NEW GUINEA

The development of the Australian Territory of Papua-New Guinea will be carried another stage with the construction of a single span steel bridge 170 ft. long over the Brown River, near Port Moresby. It will be the largest bridge in Papua, and will connect Port Moresby with the rubber estates beyond the Brown River and Kanosia.

Another big bridge, connecting the port of Lae, on the north coast, with the goldfield towns of Wau and Bulolo, was opened recently across the Markham river.

In the north-west corner of the territory, an all-weather road has been opened by the Sepik District Commissioner. The road extends 100 miles from Wewak on the coast to Maprik, on the southern slopes of the Prince Alexander Range.

EARTH MOVING EQUIPMENT

*Mr. Fred Monroe, general manager of The Sterling Equipment Company, 404 North Front-street, Baltimore 2, USA, is interested in representing, in the Maryland area, United Kingdom manufacturers of rock and earth boring trench machines, drilling augers, and other light equipment of this type, and core drills and accessory equipment for soil testing.

Mr. Monroe intends to visit the UK in the late summer and means to call on a number of manufacturers of the above-mentioned equipment.

Manufacturers interested in this agency inquiry should send full details of their offers, including prices in US currency, by airmail direct to Mr. Monroe. Telephone inquiries to Chancery 4411, ext. 776, quoting ref. ESB/6427/55.

BANK BUILDING, RANGOON

Tenders will be invited in June 1955 (instead of March 1955 as previously announced) to be received after three months of issue, for the reinforced concrete work for the proposed new head office building, Union Bank of Burma, Rangoon. Plans have been prepared by Messrs. W. W. Wood, Sons and Ptnrs., Architects, "Crosby House," Robinson-road, Singapore.

Duplicate applications to receive tenders when ready for issue must be received by general manager, Union Bank of Burma, Sule Pagoda-road, Rangoon, not later than 12 noon on May 21. The applications already submitted by contractors in response to the previous notice on this subject are under consideration. (Further details will be found in our advertisement columns.)

BRITISH INDUSTRIES FAIR

To be Held in Two Parts from 1956 Onwards

FROM 1956 onwards, the British Industries Fair is to be held at two different times of the year, according to the *Board of Trade Journal* of April 9. The first show will be at Earls Court, London, from February 22 to March 2. The second will be at Olympia, London, and Castle Bromwhich, Birmingham, from April 23 to May 4. This year's Fair will be held at Olympia and Castle Bromwich from May 2 to 13.

Mr. Kenneth Horne has been appointed full-time managing director of the Fair. He is at present one of the six directors of British Industries Fair, Ltd., the company formed last year to take over the Fair from the Board of Trade and to promote it as a commercial undertaking. After this year's Fair, Mr. Horne will take over from the present general manager, Mr. J. L. Reading, who directed the two previous Fairs and was loaned by the Board of Trade to help the new company in its first year.

The Earls Court section of the Fair in February will be for consumer goods whose main selling season is in the spring.

Olympia will cater in May for exhibitors from other lighter industries such as packaging, chemicals and office appliances, and Castle Bromwich for heavier industries such as engineering and hardware. The changes may involve some adjustment between the industries showing in London and Birmingham.

Sir Ernest Goodale, chairman of British Industries Fair, Ltd., has said; "The changes of date will meet the major criticisms of a number of industries that the Fair is held at the wrong time of the year. I am confident that the new arrangements will be welcomed by all the varied trades represented at the BIF."

The Fair Management Committee of the Birmingham Chamber of Commerce will continue to manage the Birmingham section of the Fair. British Industries Fair, Ltd., besides running the London sections, will continue to be responsible for the home and overseas publicity for the Fair as a whole.

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NEW HOSPITAL BUILDING

Ministry of Health Programme

A PROGRAMME of construction work totalling some £36½m. is to be undertaken for the Ministry of Health during the period from 1956 to 1958. The money will be spent mainly on the building of new hospitals which are to be set up in various parts of the country.

Under this scheme, the North-West Metropolitan Regional Hospital Board is to build a new hospital at Welwyn, the first stage of which will cost £750.000. The North-East Met. RHB will build a new hospital at Harlow, costing about £1,386,250, and a new out-patients' department at North Middlesex Hospital, cost £371,500. A new out-patients' department is also to be built for the Lewisham Hospital by the South-East Met. RHB at a cost of £215,000, and the South-West Met. RHB has under consideration a new block for the St. James' Hospital, Balham.

In the provinces there are a number of interesting projects. In West Cumberland, Newcastle RHB is to build a new general hospital which will involve expenditure of £1,369,500, and an extension costing about £1,266,750 is to be built on to the Prudhoe and Monkton MD Hospital. A new general hospital is to be constructed by Oxford RHB at Swindon, the first stage of which will cost £478,000.

WELSH HOSPITAL

The first stage of the development of a general hospital at Glangwili, Carmarthen, is to be undertaken by the Welsh RHB at a cost of £385,000. Extensions to mental hospitals are to be built by Sheffield and Liverpool Regional Hospital Boards at Aston Hall and New Church, where MD hospitals are already established. These will cost £870,000 and £300,000 respectively. Under consideration at present are extensions to Peterborough Memorial Hospital (which comes under the East Anglian RHB) and the new Seisdon Mental Hospital, which, if it goes into construction, will come under Birmingham RHB. The South-Western RHB is to build a new hospital in West Cornwall, cost £1,265,000, which will be one of the largest in the area.

Many other projects are included in these financial plans, but are still being discussed. These projects include the new Cardiff Teaching Hospital, the rebuilding of Charing Cross Hospital at Harrow, new general hospitals at Slough, Boston in Lincolnshire, Coventry and Sheffield, and new mental hospitals in Lancashire and Yorkshire.

This represents the first programme of new hospital building in this country since before the war, and the proposals cover only those schemes which would be financed from Exchequer funds.

TOUGHENED GLASS PANES

Toughened glass is to be used for window and door panes in houses built by Crosby Council, as a result of the number of glass panes previously broken by tenants and children. There has been considerable damage in new flats, and whereas in some cases it was merely carelessness on the part of tenants, in other cases children used the doors and windows as targets for their stones and bricks. The new panes will cost about £1 each to replace.

The SCOTTISH BUILDER

Building Plant Exhibition

THE Ministry of Works Building Plant Exhibition, which is to be held on the Queenslie Industrial Estate, Glasgow, from June 8 to June 15 inclusive, will be opened by the Rt. Hon. Lord Bilsland, KT, MC, DL, LLD, Hon ARIBA.

The opening ceremony will take place at 3 p.m. on Wednesday, June 8. On following days the hours of opening to the public will be 10.30 a.m. to 6 p.m., with extended time until 8 p.m. on Friday June 10 and Tuesday June 14.

More than 60 exhibitors will occupy space in the 150,000 sq. ft. of exhibition area, and the exhibits will cover the whole range of modern building plant, equipment and tools.

A demonstration area of 80,000 sq. ft. has been provided for exhibitors and will be in daily use. Two special features already scheduled are: the staging of a full scale demonstration of housebuilding using modern mechanical plant, including a tower crane, weighbatching plant, mechanical loader, drain trench digger, etc; and practical demonstrations of good and bad scaffolding, and methods of timbering excavation.

In the site cinema a comprehensive range of films, of general and craft interest to the building industry, will be shown daily. Admission charge to the exhibition will be 1s.

Minister Visits Old Buildings

DURING his three-day Scottish visit the Minister of Works, Mr. Nigel Birch, on April 15 inspected a number of historic buildings in Perth and Perthshire.

The purpose of Mr. Birch's visit was to see the work carried out by the Scottish headquarters of his department. With Mr. D. L. Macintyre, Under-Secretary, Ministry of Works, Edinburgh, he has been touring some of the historic buildings and ancient monuments which are under the care of his department or have been recommended for assistance by the Historic Buildings Council for Scotland.

The party visited Dunblane Cathedral, Methven Castle, Huntingtower Castle, and Pitheavlis Castle. Plans for the renovation of the latter building, which belongs to Perth Town Council, have been approved.

President's Re-election

MR. WILLIAM A. P. JACK, ARIBA, was re-elected president of the Glasgow Institute of Architects, at their annual meeting in Glasgow on April 13.

He said that with relaxed building controls, architects would find a greater clarity and incentive in what they had to do. They might find themselves returning to better class work and better class workmanship and he urged that they should endeavour in construction and design to build in the best and most permanent way, always remembering that costs must be kept as low as possible

Scottish NJC Decisions

THE Scottish NJC on April 14 decided to make a general wage advance of 2½d. per hour for craftsmen and 1½d. for labourers. Variations to accord are made in the Wages Table on this page. Increases operated from April 18.

Other Council decisions and recommendations were:

JOINERS' TOOL MONEY: The Council resolved that as from April 18 the Tool Allowance for joiners and for joinery apprentices providing and maintaining tools be raised from 2d. per day to 4d. per day.

ACCIDENT PAYMENTS: The following recommendation was also made by the Council:

Payment to Operatives in case of accident: Payment at plain time rate for working hours lost of a normal working day on the day of an accident shall be made to a workman, while attending for medical treatment as authorised by the employer or his representative; such payment to be restricted to the period necessary for receiving such medical attention, and subject to the workman returning to work the same day if circumstances permit.

Cumbernauld Progress

PROSPECTS for the project of a new town at Cumbernauld were greatly brightened recently by an official statement that "substantial progress" had been made towards a resolution of the outstanding differences between Glasgow Corporation and the Scottish Office regarding the financial implications of the proposed new town.

The statement was made after Commander T. D. Galbraith, Minister of State, Scottish Office, had discussed the financial and other aspects in Montrose House, Glasgow, with representatives of Glasgow Corporation and Dumbarton County Council.

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SCOTTISH BUILDING TRADE WAGES

FOLLOWING are rates of wages authorised by the Scottish National Joint Council as from April 18, 1955. They apply to the whole of Scotland, including the islands of Orkney, Shetland, etc.

Grade A: Craftsmen, 4s.; Labourers, 3s. 5½d.

For apprentices, the rates are:

Year.	Percentage of Craftsman's rate.	For week of 44 hours. s.	d.
1st	25	44	0
2nd	33⅓	58	8
3rd	50	88	0
4th	66⅔	117	4
5th	75	132	0

For female labour, the rates are:

	s.	d.
Operatives on craft operations (at end of probationary period)	3	5½
Operatives on labouring operations (at end of probationary period)	3	2

Prefabricated Housing Experiment

FIFE COUNTY COUNCIL are to experiment with the conversion of pre-fabs to permanent housing, by enclosing one unit in a brick shell. The house selected for this experiment is one erected in Thornton, Fife, in 1946. Work on these lines has already been carried out at Kilmarnock.

Hydro Scheme Inaugurated

THE Moray hydro-electric scheme, which will make electricity available to 2,000 premises, including 750 farms, in Moray and Central Banffshire, was inaugurated at Rafford, near Forres, on April 16 by Mr. James Stuart, Secretary of State for Scotland.

Factory at Thornliebank

REMINGTON Rand, LTD., who are the British associate of the American office equipment and light engineering undertaking, and who have been operating at Hillington Industrial Estate, Glasgow, for some years, are to take over a factory at Thornliebank.

The site of the new factory, which will be about 130,000 sq. ft. in area, is now being cleared in preparation for construction.

NEW BUILDINGS

Appin & Port Helen.—Argyllshire CC has had plans approved for the reconstruction and additions to the Ramsay memorial halls at Port Helen, and new village halls for the Appin district. Architect: William R. Tocher (F); Quantity Surveyor: Mr. D. Bryden Macfarlane Johnstone, County Offices, Cowal Hotel-bldgs., Alexandria-pde., Dunoon.

Ayr.—Plans are to be prepared for new housing schemes at the Cunningham-pl. and the Caledonian-rd. housing areas. Architect: Thomas O'Brien, Municipal-bldgs., High-st., The Sandgate, Ayr.

Ayrshire.—Plans for the replacement of the technical college at Ayr have been approved by the County Ed. authority, the first stage of which will be the erection of a new wing, probably of two storeys. Council A: Robert G. Lindsay (A), County-bldgs., Wellington-sq., The Sandgate, Ayr.

Blantyre.—Lanarkshire CC has had plans approved for the 2nd development of the Goatshill housing scheme (146 houses, etc.). Architects: Samuel MacColl (A), County-bldgs., Beckford-st., Hamilton West.

Glasgow.—Corporation is considering plans by the firm's architects for scheme of reconstruction at 258, Bath-st., for new showrooms, offices, and storage buildings, for the Prime-aid Medical Supply Co., Ltd., 213, West Campbell-st., Glasgow.

Glasgow.—Fire station and other offices at Berkeley and Claremont-sts., adjoining North-st., Charing

Cross, Architectural & Planning Department, Municipal-bldgs., George-sq., Glasgow.

Glasgow.—Corporation has granted permission for the erection at Clarkston-rd. and Muirend-ave., Cathcart, of new motor showrooms, new offices, workshops, etc., for Messrs. Arrol & Co., Ltd., 32-48, Gavieston-st., Glasgow.

Glasgow.—Corporation is considering plans for the reconstruction of St. James's Church halls, etc., at London-rd., Calton, for new cabinet works, and storage buildings, etc., by the Architects of the Norfolk Cabinet Works, Ltd., 168, Gallowgate, Calton, Glasgow.

Greenock.—Plans have been approved for 14 houses, etc., at Kerr-pl. Architect: Robert L. Rankine, Master of Works Offices, Municipal-bldgs., Hamilton-st., Greenock.

Greenock.—The Board of Management of Greenock & District Hosp. Bd., Royal Infirmary, West Shaw-st., has a scheme in hand for new clinic at Duncan-st.

Keith.—Banffshire CC has plans in hand for new school. County A: William R. Wark (A), County-bldgs., Cullen.

Lanarkshire.—Plans are to be prepared for new telephone exchange, new Ministry of Labour and National Service buildings, and employment exchange, Dryfrig-rd., Shotts. Architects: Staff of the Ministry of Works.

Lanarkshire.—Plans prepared for John Maclean, Ltd., East Kilbride, have been approved for garage, workshops, petrol station, etc., at Parkview, East Kilbride. Architect: James Frazer (F), 17, Cloverhill-ter., West Kilbride.

Renfrewshire.—Gourock Corp. has instructed their architect to prepare plans for submission to the Scottish Department of Health for the development of the Shore-st. housing site. Architect: George Macneil (F), Municipal-bldgs., Shore-st., Gourock.

Thornliebank.—Plans have been approved for new factory buildings at the Scottish Industrial Estate. Architects: Watson, Salmons & Gray (F&A), Central Station-bldgs., Union-st., Glasgow.

NEW COMPANIES

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

C. D. Wales, Ltd. (546285.) Regd. March 22, 1955. Oak Tree Yard, High-st., Crawley, Sussex. Builders, etc. Nom. cap.: £5,000. Dir.: P. C. Wales.

C. F. Procter, Ltd. (546286.) Regd. March 22, 1955. 419, Holderness-rd., Hull. Plumbing and general engineers, etc. Nom. cap.: £5,000. Dir.: Annie Procter.

W. Dibden (Contractors), Ltd. (546282.) Regd. March 22, 1955. 33, Pervin-rd., Cosham, Portsmouth. Builders and contractors. Nom. cap.: £3,000. Permt. dir.: W. P. A. Dibden.

J. F. Robinson (Huttoft), Ltd. (546322.) Regd. March 23, 1955. Southfields, Huttoft, Lincs. Bldr. and contractor. Nom. cap.: £3,500. Permt. dir.: J. F. Robinson.

N. Munns, Ltd. (546326.) Regd. March 23, 1955. Broomfields, Send Hill, Send, Surrey. Bldrs., etc. Nom. cap.: £1,000. Dir.: N. A. J. Munns.

Leamington Tarmacadam, Ltd. (546353.) Regd. March 23, 1955. Wicksted, Blackdown, Leamington Spa. Public works contractors, paviors, macadam and asphalt contractors, etc. Nom. cap.: £100. Dir.: Mrs. V. M. N. Lewis.

Knight Bros. (Contractors), Ltd. (546503.) Regd. March 25, 1955. Central-chbrs., High-st., Alfreton, Derbys. Plant hire contractors, etc. Nom. cap.: £2,000. Dir.: T. W Knight.

Charles Sinfield & Sons (Aspley), Ltd. (546474.) Regd. March 25, 1955. 1, Bedford-rd., Aspley Guise, Beds. Bldrs., etc. Nom. cap.: £7,500. Dir.: A. C. Sinfield.

Henry Bell & Sons (Bridgwater), Ltd. (546588.) Regd. March 26, 1955. 31 Wellington-rd., Bridgwater, Som. Plumbers, painters and decorators, bldrs., etc. Nom. cap.: £2,500. Dir.: H. G. Bell.

J. Ball & Sons, Ltd. (546592.) Regd. March 26, 1955. 17, Co-operative-ter., Meltham, nr. Huddersfield. Bldrs., etc. Nom. cap.: £2,000. Dir.: J. T. Ball.

C. Cornes & Son, Ltd. (546793.) Regd. March 29, 1955. 169, Lichfield-st., Hanley, Stoke-on-Trent. Bldrs., contractors, etc. Nom. cap.: £100,000. Dir.: H. Cornes (gov. dir.).

C. Cornes & Son (Cheshire), Ltd. (546792.) Regd. March 29, 1955. 169, Lichfield-st., Hanley, Stoke-on-Trent. Bldrs., contractors, etc. Nom. cap.: £15,000. Dir.: H. Cornes (gov. dir.).

Wellington Wooler, Ltd. (546621.) Regd. March 26, 1955. 2, Burtons-arcade, Leeds. Bldrs.' mchts., etc. Nom. cap.: £5,000. Dir.: E. J. L. Wooler.

G.C. (Spalding), Ltd. (546632.) Regd. March 26, 1955. Newark-rd., Peterborough. Civil and constructional engrs., etc. Nom. cap.: £2,000. Dir.: R. A. Gurney.

F. T. Ackland & Son, Ltd. (546713.) Regd. March 29, 1955. Deptford-pl., Plymouth. Bldrs., etc. Nom. cap.: £1,000. Dir.: H. G. Ackland.

H. Bird & Sons, Ltd. (546720.) Regd. March 29, 1955. 188, Cheney Manor-rd., Swindon. Heating, plumbing and sanitary engrs. Nom. cap.: £1,000. Permt. dir.: H. Bird.

E. A. Young, Ltd. (546702.) Regd. March 29, 1955. 11, Hewett-st., Curtain-rd., EC2. Bldrs., etc. Nom. cap.: £1,000. Dir.: B. Pritchard.

E.C.A. Construction Co., Ltd. (546703.) Regd. March 29, 1955. Bldrs., etc. Nom. cap.: £100. Dir.: E. C. Halse.

The Builder FUTURE CONSTRUCTION

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

APRIL 25.

*†**Ipswich CBC.**—88 houses, Chantry estate. BE&S. Dep. £3 3s. Tenders by June 2.

APRIL 27.

*†**West Riding CC.**—Clinic, Parsons Cross, Ecclesfield. County A, Bishopgarth, Westfield-rd., Wakefield. Dep. £2 2s. Tenders by May 9.

APRIL 28.

*†**Bristol City C.**—Alterations and additions, Avonmouth Docks Canteen. City A. Dep. £2 2s.

APRIL 29.

*†**Crawley Dev. Corp.**—839 dwellings, Southgate, East. Chief A, Broadfield.

*†**Crawley Dev. Corp.**—50 dwellings, Northgate housing site, No. 9. Chief A, Broadfield.

*†**Wandsworth BC.**—26 flats and 2 houses. TC.

*†**Wem UDC.**—62 houses, 15 garages and 27 flats, R. S. Biggins (A), 123, Boughton, Chester. Dep. £3 3s.

*Willenhall UDC.—Seven shops with maisonettes over, 5 shops with flats over and service roads, New Invention Shopping Centre. Council's A.

APRIL 30.

*†**Essex CC.**—Clinic, Couchmore-ave., Ilford. County A, Chelmsford.

*†**Plymouth City C.**—Reconstruction after war damage, The Guildhall. City A, Seymour-rd. Dep. £3 3s.

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MAY 2.

*†**Farnborough UDC.**—Extension, town hall. E&S. Dep. £2. Tenders by May 23.

*Halifax CBC.—New fire station, Keighley-rd. BE. Dep. £2.

MAY 3.

*†**Enfield UDC.**—18 flats, 36 houses, Grove-rd. West. E&S, 7, Little Park-gdns. Dep. £2 2s. Tenders by June 1.

MAY 4.

*Aldridge UDC.—Eight garages, Woodlands-cres., Pelsall, and 16 garages, Broad Meadow, Aldridge. E&S. Dep. £2 2s.

MAY 7.

*†**West Sussex CC.**—New Thorney Island school. County A, Chichester.

MAY 9.

*Bournemouth CBC.—Alterations and adaptations, Summerbee secondary school, Mallard-rd., Charminster. Boro' A. Dep. £2 2s.

*Hereford City C.—Crematorium, Westfaling-st. City S. Dep. £3 3s.

*Ripley UDC.—28 houses, Bullbridge estate. H. Hillier, S. Dep. £2 2s.

Washington (Co. Durham) UDC.—78 houses at Coach-rd. site, stage 2. E&S. Dep. £3 3s.

*West Riding CC.—Reorganisation of conveniences and cloakrooms, Askern Selby-rd. junior school. Divisional A, "Bishopgarth," Westfield-rd., Wakefield. Dep. £1 1s.

*York City C.—38 houses, Don-ave. City A, 8, St. Leonard's-pl. Dep. £1.

MAY 10.

*Lincoln (Kesteven) CC.—Pair of police houses, Exeter-gdns., Stamford. County A, Sleaford.

MAY 13.

*Machynlleth UDC.—30 houses, Tanrallt site. Walter B. Bond, FRICS, Windsor House, 49, Calthorpe-rd., Edgbaston, Birmingham, 15.

MAY 14.

*Great Yarmouth CBC.—Erection of girls' high school, Gorleston. F. Jackson (A), 22, Euston-rd. Dep. £2 2s.

MAY 16.

*Luton BC.—Four shops with 4 flats over, Yeovil-rd., Ashcroft-rd. estate; 4 old people's dwellings on same estate; and boiler house extension, Waller-st. baths. BE. Dep. £2 2s. each.

MAY 18.

*Blyth BC.—41 houses, Laverock Hall-rd. BE. Dep. £2 2s.

*Worcester City C.—50 houses, Warndon site. City E., 22, Bridge-st. Dep. £3 3s.

MAY 19.

*Croydon CBC.—Alterations, Tavistock secondary girls' school, Tamworth-rd. Chief Ed. Officer, Katharine-st. Dep. £1.

*Guildford BC.—Six pairs of houses and two blocks of eight flats. BE&S. Dep. £2 2s.

MAY 23.

*Stourbridge BC.—36 houses and 8 flats, Wolaston Farm estate. BE&S. Dep. £3 3s.

MAY 25.

*Howden RDC.—20 houses. G. L. Thompson (F), Clifton-chbrs., Park-st., Selby. Dep. £2 2s.

MAY 27.

*Lowestoft BC.—Conversion of playshed to staff room, Kirkby junior school, Lovewell-rd. BE, 49, High-st. Dep. £1 1s.

JUNE 14.

*East Riding CC.—New school at Beverley and at Driffield. County A, Beverley. Dep. £2.

NO DATE.

*North-East Metropolitan Reg. Hosp. Bd.—Extensions to admission hospital, Runwell Hospital. Secretary, 11a, Portland-pl., W1.

Scottish Spec. Hsg. Assoc.—248 houses and flats at Bellsmyre site, Dumbarton. Scottish Special Housing Association, Ltd., 15-21, Palmerston-pl., Edinburgh, 12.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

APRIL 28.

*†**Isle of Ely CC.**—Installation of central heating, Pymoor VP (controlled) school. County A, March. Dep. £2 2s. Tenders by May 18.

MAY 1.

*†**Hampstead BC.**—External painting of 140 flats at South End-close, NW3, and 92 flats, Wood Field and Barn Field, NW3, Town Clerk.

MAY 9.

*Epsom and Ewell BC.—External decoration, Ewell Court House, Ewell. BE&S. Dep. £2 2s.

MAY 14.

Hyde BC.—External painting of various council houses. BE&S, Municipal Buildings, Greenfield-st.

*Southport CBC.—Painting to schools and kitchens. Chief Ed. Officer, 99-105, Lord-st.

MAY 16.

***Uxbridge UDC.**—External painting 450 houses. ES&A. Dep. £2 2s.

MAY 24.

***East Riding CC.**—Electrical and heating engineering, Beverley, Molescroft secondary school and Driffield secondary school for girls. County A, Beverley.

***Finchley BC.**—Annual decorations to schools and other buildings (six contracts). BE&S. Dep. £2 (each).

ROADS, SEWERAGE AND WATER WORKS

MAY 9.

Maidstone BC.—Widening of Plains-ave., South Park-rd. and West Park-rd. BS, Palace-ave.

Manchester City C.—Demolishing and rebuilding a two-ring brick arch, using arch construction over a length of approx. 90 yds. and prestressed beam construction over a length of 8 yds. under an existing building (Cornbrook culvert, Greenheys-la., Chorlton-on-Medlock). City S.

MAY 13.

Drayton RDC.—Contract No. 5 (ext. to Wollerton). 4,500 lin. yds. of asbestos cement water mains, etc. Sir Arnold Waters, MICE, engineers, 25, Temple-row, Birmingham, 2. Dep. £3 3s.

MAY 16.

Upton-upon-Severn RDC.—Callow End sewerage. 1,635 lin. yds. of 9-in. stoneware pipe sewers, etc. Willcox, Raikes & Marshall, 33, Gt. Charles-st., Birmingham, 3. Dep. £5 5s.

MAY 30.

***†Anglesey EC.**—Resurfacing of school playgrounds. County A, Llangefni. Tenders by June 20.

JUNE 6.

Tynemouth CBC.—Surface dressing of carriageways, approx. area 125,000 sq. yds. BS, 16, Northumberland-sq., North Shields. Dep. £2 2s.

GENERAL BUILDING WORK

(LONDON)

Bermondsey.—DEPOT EXTENSIONS.—Scheme for the enlargement of the main drainage depot at No. 48, Farncombe-st., at an estimated cost of £9,650, has been approved by LCC.

Cheam.—CHURCH EXTENSIONS.—A scheme for extensions to St. Andrew's Church is being prepared by M. Ayrton and Theobald, architects, 9, Church-row, Hampstead, NW3.

City.—RECONSTRUCTION WORK.—A scheme for the reconstruction of the site of 81-83, Long-la., EC1, for Messrs. Zylan, Ltd., has been prepared by Ronald Ward and Ptnrs., architects, 29, Chesham-pl., Belgrave-sq., SW1.

Islington.—SITE DEVELOPMENT.—Hsg. Com. recommend that MBC acquire the sites of 12-14 (even), Rotherfield-st.; 1-5 (cons.), Sherborne-st. and 1a, Sherborne-st., and 16-20 (even), Rotherfield-st., comprising an area of just over half acre, to form the site for Block "M," Rotherfield-court, stage 3, which will comprise 14 dwellings and a children's library. Hsg. Com. recommend the appointment of E. C. P. Monson, AA.RIBA, architects, 120, Moorgate-st., EC2, as architects, and O. E. Parratt, FRICS, Adelaide House, London Bridge, EC4, as quantity surveyor, for the scheme.

Islington.—BATHS RECONSTRUCTION.—Baths Com. recommend MBC's approval in principle to the proposed rebuilding of the war-damaged swimming bath at the Hornsey-rd. Baths in a modernised form, at an estimated cost of £229,000, and recommend that the appointment be confirmed of Kenneth M. B. Cross, MA, FRIBA, 46, New Bond-st., W1, and Oswald E. Parratt, FRICS, Adelaide House, London Bridge, EC4, as the architect and quantity surveyor respectively for the scheme.

Mayfair.—OFFICES AND SHOPS.—The erection of offices and shops in Jermyn-st. has been proposed by J. Lyons & Co., Ltd., Cadby Hall, W14, and will be carried out by the company's own building department. The company's architects' department have prepared the plans, and demolition work on the site has been commenced by Willment Bros., Ltd., 462, London-rd., Isleworth.

Southwark.—MULTI-STOREY BUILDING.—The erection and building of a basement and four storeys on the site of Nos. 5-7, Marshalsea-rd., proposed by A. Francis, 25, Queen's Gate-mews, SW7, has been given TP approval.

Southwark.—NEW ESTATE.—The construction of new streets as private estate roads has been proposed by the Superintending Architect, London County Council, County Hall, SE1, for the Lawson-st. housing site, and general approval has been given by MBC.

Southwark.—NEW EXTENSIONS.—TP approval has been given to proposals by F. Sutcliffe, FRIBA, 60, Haymarket, SW1, for the erection of a new building as an extension to the engineering works adjoining the site of 100-112, Union-st., for Walworth, Ltd.

Southwark.—PETROL FILLING STATION.—Proposals have been made by Jones, Lang, Wootton & Sons, surveyors, 16-17, King-st., EC2, on behalf of Vidgens of the City, Ltd., for the erection of a petrol filling station on the site of Nos. 3, 4 and 5, St. George's Circus.

Southwark.—REINSTATEMENT.—TP approval has been given to proposals by W. G. Edwards, surveyor, 9-10, Blackfriars-rd., on behalf of the Wedge Property Co., to reinstate part of Nos. 11-12, Blackfriars-rd.

Southwark.—SHOWROOMS, OFFICES.—A scheme for the erection of a motor-car showroom and office, together with petrol filling station and small repair workshop, on the site of Nos. 33-63, New Kent-rd., is being prepared by L. Solomon, Son & Joseph, architects and surveyors, 21, Bloomsbury-way, WC1, on behalf of Louville Estates, Ltd.

(PROVINCIAL)

Accrington.—C of E Auths. propose new sec. mod. sch. facing Queen's-rd. West. Architect, D. Houston, Padiham, £140,000 est.—TC propose appointment of private architects to prepare plans for erection of municipal shops and offices at rear of Town Hall.

Belper.—W. Alton & Sons, Ltd., Makeney, Milford, propose erection of housing estate containing 49 houses on site between Mill-st. and The Orchard. Architect, A. P. Taylor, Belper. Work to commence on May 2, 1955.

Birmingham.—F. W. Woolworth & Co., Ltd., Martins Bank-bldgs., Water-st., Liverpool, propose new premises at Kents Moat Estate.—Bulpitt & Sons, Ltd., 132, Icknield-st., propose multi-storey offices and warehouses with garage accommodation.

Birmingham.—Wilmot Breeden, Ltd., plan to build new factory in Bloxwich. Walsall Public Works Com. recommend sale of 33 undeveloped acres of land fronted by Hatherton-la. and Fryers-rd. for £16,625 to company. Development of site expected to start during summer and factory is likely to be in production before end of 1956.

Bishop Auckland.—UDC approved layout plans for 130 houses on Woodhouse-cl. Estate. UDC Surveyor, J. Ford.

Blyth.—TC to sell acre of land to Blyth Dry Docks and Shipbuilding Co., Ltd., for firm to construct new building berth to accommodate tankers up to 30,000 tons.

Bristol.—New Stonebridge House (70 ft. high office block) is to be built on site of old Electricity Undertaking premises in Rupert-st., Bristol. Architect, Morris de Metz, 2, Ludgate-hill, London, EC4, and letting agents are Stanley, Alder & Price, in conjunction with Hartnell, Taylor & Co.

Bristol.—Shops for Shops Reconstruction (Bristol), Ltd., to be erected at 60-62, Park-st. Architects: Ronald Ward & Ptnrs., 29, Chesham-pl., Belgrave-sq., SW1.

Burnley.—F. W. Woolworth & Co., Liverpool, propose extensions to premises at Victoria Theatre site.

Bury.—TC approved plans for crematorium and Garden of Rest, £90,000 est.

Carlisle.—Revised plans approved for erection of 26 houses in Lansdowne-cres. and Scotland-rd. for A. Blakeley & Son, builders. Scotland-rd.—Automatic Coal Cleaning Co., seek land on Durranhill Estate for new technical and admin. buildings, laboratory, stores and service buildings.—Graham & Roy, Paternoster-row, architects for proposed cinema on Harraby neighbourhood unit for Rural Cinemas & Entertainments, Ltd.—Carr & Co., Ltd., to erect two floors over existing building in Burns-st. for use as tin washing dept. and store.—Revised plans approved for extending Cumberland Infirmary to provide radio-therapy dept. Architects, Graham & Roy, Paternoster-row.—A. S. Nixon, Ltd., builders, Lowther-st., to erect houses in Green-la.

Chester.—RDC propose erection of houses and flats at Christleton.

Corby.—UDC propose erection of further 40 houses.

Coventry.—TC propose erection of seven four-storey blocks of flats at Purcell-rd., Courthouse Green Estate; approved scheme for new slipper baths at Primrose Hill, £24,045 est.; seek Min. approval for erection of aged persons' homes at Killenhall and Stoke Aldermoor Neighbourhood Units.

Darlington.—Markets Com., in view of proposed town centre redevelopment scheme, approved new site for market. Boro' A: A. E. Tornbohm.

Darlington.—TC approved plans for erection of 74 houses on Branksome Estate. Plans by Boro' A, A. E. Tornbohm.

Daventry.—TC received special allocation of 99 houses to meet requirements of British Timken, Ltd.

Dewsbury.—Dewsbury and West Riding Building Society propose extensions to offices at Church-st. Architects, Smith & Curry, 1, Church-st., Heckmondwike.

Disley.—UDC approved layout for aged persons' bungalows off Buxton-rd.

Drayton.—RDC approved provisional layout for 40 houses at Manorfields site, Childs Ercall.

Eston.—UDC to spend £27,836 on construction of 24 bungalows on Crossbeck Estate, Normanby. Surveyor, N. C. Harrison, South Bank-on-Tees.

Freckleton.—C of E Auths. seek Min. approval for erection of Stage 2 of new C of E sch.

Gateshead.—TC to obtain tenders for building 13 houses on Wrekenton neighbourhood site. BE, G. F. Winters.

Gateshead.—Clarke, Chapman & Co., Ltd., engineers, Victoria Works, propose three-storey office block at their works.

Guisborough.—Turner & Ing, 2, Garden-st., Darlington, appointed QS by North Riding of Yorks. EC for proposed Guisborough CMS. A, J. H. Napper, Eldon-pl., Newcastle-on-Tyne.

Hartlepool.—MH and LG approved erection of 18 houses near West View-rd. by direct labour for TC.

Hebburn-on-Tyne.—A. Keyrolle & Co., Ltd. bought site for erection of factory for light engineering components. Architects, Cackett, Burns, Dick & McKellar, 21, Ellison-pl., Newcastle-on-Tyne.

Huyton (near Liverpool).—Bents Brewery Co., Ltd., 30, Johnson-st., Liverpool, propose erection of licensed premises at Longview-dr. and Wallace-dr., £38,000 est.

Keighley.—EC propose extensions at Braithwaite Open Air Sch.

Kidderminster.—Licensing justices approved erection of licensed premises at junction Walter Nash-rd./Stourport-rd. for Kidderminster Brewery Co., Ltd.

Lancaster.—TC propose erection of further 114 dwellings and shops at Ridge Estate in 1955 programme.

Leek.—UDC seek approval of further 210 houses and 80 garages at Harrogate Estate.

Liverpool.—TC propose erection of second block of shops at Southdene Estate, Kirkby, to contain 14 shops, 32 flats and 10 garages.

Manchester.—Reg. Hosp. Bd. approved improvements to Ward 6 at Wythenshawe Hosp: conversion of Ward G1 as chest clinic at Hope Hosp., Salford.—Hilton Gravel Co., Ltd., propose erection of concrete batching and mixing plant on site of Staffs. Warehouse, Potato Wharf and Duke-st., off Liverpool-rd. Architect, Clifford Wild, Otterman Bank-chbrs., 51, King-st., Manchester.—Erection proposed of presbytery at St. Michael's Church, George Leigh-st., Ancoats, for trustees of Diocese of Salford. Architects, Greenhalgh and Williams, 15, Mawdsley-st., Bolton.—A. Cassel & Sons, Ltd., 1-11, Teneriffe-st., Salford, propose erection of two factories at Jersey-st. and Poland-st., Ancoats.—New warehouse and offices at Altrincham-st., Britain-st., Brierley-st. and Lower Albion-st., for A. T. Moffatt, Ltd. Architects, Harry S. Fairburst & Son, 55, Brown-st., Manchester.

Manchester.—Corpn. Housing and TP Committees approved plans for redevelopment of 24 acres of land in Mill-st., Ancoats, district. Compulsory purchase of land and redevelopment of area with one eight-storey block of flats, 111 two-storey houses and cottage flats, and 373 maisonettes will, it is estimated, cost £1,200,000.

Middlesbrough.—New RC sec. sch. to be built to plans by Boro' A.

Newbold (nr. Chesterfield).—Victoria Enterprises, Ltd., Chesterfield, propose erection of cinema on site between Cross Daggers and Nag's Head Hotels.

Newburn-on-Tyne.—UDC to build 90 houses this year. Plans by S, J. W. Weatherley.

Newcastle-on-Tyne.—City C to sell to Scott & Turner, Ltd., Gallowgate, Newcastle, 3¼ acres of land at Fawdon for additional factory accommodation, to cost £250,000. Firms A. Cackett, Burns Dick & McKellar, 21, Ellison-pl.—Extensions to be made to Danesfield Garage,, Walker-rd. Architects, Wilson & Wilson, Gallowgate.—Metal Box Co., Ltd., to extend their factory in Back Chapman. Architects, Cackett, Burns Dick & McKellar, 21 Ellison-pl.—New British Legion Club to be built at Forest Hall. Architects, Simpson & Lawson, Emerson-chmbrs.—Pearce Motors, 36-38, West-rd., to make alterations for showroom and garage and had plans approved.

Northumberland.—New county sec. schs. at Alnwick (£88,700), Morpeth (£103,150) and North Sunderland (£46,750), included in EC's programme for 1955-56. Plans by County A, C. C. Brown, Newcastle-on-Tyne.

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Nottingham.—Boots Pure Drug Co., Ltd., propose erection of research centre at Pennyfoot-st. Plans by own architects' department.

Nuneaton.—Clarksons (Engineers), Ltd., propose extensions to offices block at King Edward-rd. Architects, H. N. Jepson & Ptnrs., Midland Bank-chbrs., Nuneaton.

Otley.—UDC seek increase in allocation of houses for erection this year on Western-la. Estate.—Approved plans, kitchen and canteen at Riverdale-rd. for North-par. Sec. Mod. Sch. Service garage at Leeds-rd. for L. W. Bradford. Office building at Bridge End for Bridge End Cattle Auction, Ltd.

Padiham.—Morley Products, Ltd., propose extensions to their Victoria Works. Architect, W. Houston, Burnley-rd., Padiham. £60,000 est.

Penrith.—UDC to invite tenders for 100 houses at Milner Mount.

Peterborough.—C of E Diocese propose churches at Dogsthorpe area of Peterborough; St. Colomba District of Corby; St. Mary District of Kettering; St. Andrew District of Wellingborough; and Kings Heath Dallington District of Northampton.

Rochdale.—Licensing justices approved transfer of licence from Black Dog Inn, Lanehead, to new premises to be built at junction Daniel Fold/Ings-la.

Scalby.—UDC approved plans for erection of 12 bungalows adjoining Highfield Estate; erection of factory off Newby Bridge-la. for Erskine Laboratories, Ltd.

Scarborough.—T. Laughton, Ltd., propose erection of 12 bungalows adjoining Highfield Estate; erection of factory off Newby Bridge-la. for Erskine Laboratories, Ltd. The company also propose erection of licensed premises at 40-44, Prospect-rd., Scarborough.—TC approved plans for extensions to St. Ulkes Church for PC Council.

Scarborough.—TC been allocated 100 houses for erection this year.—A. C. Wells, 182, Victoria-rd., Scarborough, architect for proposed warehouse and store in Londesborough-rd. for C. Brookens.—BE, H. V. Overfield, to prepare plans for improvements to junction of Westborough and Northway and Valley Bridge-rd.

South Shields.—Local Hosp. Management Com. mittee urging Newcastle Hosp. Board, "Dunira," Newcastle-on-Tyne, to proceed with large scheme for alterations and additions to out-patients' dept. at Ingham Infirmary. Board's Chief A, P. H. Knighton.

Staffs.—CC approved schemes for alterations at Lane Green Cty. Prim. Sch., £20,000 est.; Wednesfield Perry Hall Cty. Prim., £39,000 est.—EC approved plans for extensions at Tamworth College of FE, £53,000 est.; Wednesbury Commercial College, £57,000 est.; Leek College of FE, £15,000 est.; and Dudley Tech. College, £92,000 est.

Stockton-on-Tees.—RDC received sanction to borrow £29,715 for erection of 24 houses at Preston. Plans by Surveyor, G. W. T. Brown.

Sunderland.—TC to convey to Bethesda Free Church authority, site on Farringdon estate, for new church and church buildings.

Sunderland.—W. & T. R. Milburn, 17, Fawcett-st., prepared plans for 10 houses at The Broadway for W. M. Glass, Ltd., builders, Melrose House, Ryhope.—New showroom, office and warehouse to be erected in Olive-st. for Dunwoodie & Co., Ltd., to plans by S. W. Milburn & Ptnrs., 9, Esplanade.—Plans by Newrick & Blackbell, John-st., for proposed showrooms, offices and warehouse in High-st. West, for Steels of Sunderland, been approved.—W. & T. R. Milburn, 17, Fawcett-st., prepared plans for 20 semi-detached houses in Barnes Park-rd.—TC received loan sanction for £21,752 for four shops and flats and 12 garages in Cockermouth-rd.; £20,139 for four shops and flats and six garages in Castleford-rd.; and £102,086 for erection of Castle View Cty Jun. Boys' and Girls' Sch.

Thornaby (Yorks).—TC approved in principle proposed erection of cty. mod. sch. in Mandale-rd. for North Riding EC. Architects, Johns & Slater, 32 Foundation-st., Ipswich.

Wallsend.—TC received loan sanction for £43,670 for erection of 32 houses and roads and sewers on Low Willington Farm Estate—Loan sanction sought for £95,273 for erection of 74 houses and 23 garages (builder, J. H. James & Son, Willington Quay).

Wallsend.—Swan Hunter and Wigham Richardson, Ltd., are to construct large fabricating sheds at Wallsend Shipyard.—Stienlet & Son, 4, Queen's-sq., Newcastle-on-Tyne, architects for proposed RC church in Carville-rd. for Diocese of Newcastle and Hexham.—Davis Bros. (Haulage), Ltd., Forest Hall-rd., Newcastle-on-Tyne, to construct transport depot in Bewick-rd. and approval of planning authorities being sought.—R. T. Smith, Cleveland-ave., North Shields, prepared plans for laboratory in Bewick-rd. for Houseman and Thompson, Ltd.

Walsall.—BC approved scheme for extensions to North Walsall Public Works Depot, £26,850 est.

Warwickshire.—EC propose erection of jun. sch. at Whitnash, £53,000 est.

Warwickshire.—EC propose following in 1955-6 programme:—Extensions at Exhall Ash Green Cty. Sec. Sch., £113,500 est.; also at Kingsbury Cty. Sec. Sch., £110,000 est.

West Riding.—EC seek Min. approval for 1955-6 schools programme as follows:—Sowerby Bridge Sec., £210,000 est.; Holmfirth Sec., £160,000 est.; extensions at Elland Grammar, £160,000 est.; extensions at Dinnington Sec., £175,000 est.; extensions at Settle Sec., £100,000 est.; erection of Thurcroft Jun., £45,000 est.; Thurcroft Inf., £45,000 est.; Snydale-rd. Inf., Cudworth, £45,000 est.; Bawtry Jun., £35,000 est.; Morley Wide-la. Jun. Mod. and Inf., £51,000 est.; Barnburgh Prim., £35,000 est.

Workington.—Curwen & Co. to rebuild Hippodrome Cinema, recently destroyed by fire.

TENDERS

* Denotes *accepted*
† Denotes *provisionally accepted*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government Departments.*

Aberdeen.—School and other buildings at the Maesrick housing site. Alexander B. Gardner (F), Council A, Broad-st. Offices, The Castlegate, Aberdeen. Excavation, brick, building, concrete and allied works: *Donald C. Stewart & Stewarts (Aberdeen), Ltd., Bridge of Don Contracting Works, Aberdeen, £14,112.

Accrington.—88 houses and flats at Burnley-rd. Estate, for BC: *Wm. Townson & Sons, Ltd., Higher Swan-la., Bolton, £107,395.

Amersham.—20 one-bedroom flats at Whielden-st., Old Amersham, for RDC: *E. S. Gates, Ltd., £20,598; 41 houses on the Bell-la. housing estate at Little Chalfont: *E. S. Gates, Ltd., £50,170.

Ayrshire.—150 houses (21st development of the Oakbank housing scheme) and 100 houses (8th development of Kilmarnock's Bellfield housing scheme). N. S. Sutherland (F), Council A. QS: W. H. MacColl, Master of Works Offices, Municipal-bldgs., Kilmarnock: *James Moulds (Kilmarnock), Ltd., 38, High Glencairn-st., Kilmarnock, £213,553.

Banffshire.—New Keith housing scheme (90 houses). A. M. Lochhead (F), Council A, Master of Works Offices, Keith: *Weirs Housing Corpn., Ltd., Calder-st., Mossend, Coatbridge, £119,356.

Barnes.—22 flats, etc., Barnes High-st. and Grove-rd., SW13, for BC. A, W. R. Shepherd, AMICE, QS, Above. *C. Graham Smith (Builders), Ltd., 4, Porchester-pl., W2, £42,513.

Birmingham.—Flatted factory on a site bounded by Dartmouth-st., Richard-st. and Adam-st., Duddeston, for TC: *Wilson Lovatt & Sons, Ltd., Clarence-st., Wolverhampton.

Boston (Lincs).—Housing site, Woad Farm, 46 houses and 24 bungalows. *J. Colam & Sons, Ltd., £76,461, and 30 houses, *J. T. Barber & Sons, £38,300.

Breckknock.—Trecastle housing site, 20 houses and site works. *Davies, Middleton & Davies, Ltd., Caerphilly-rd., Cardiff, £36,940.

Brighton.—Grammar school at Stanmer, for EC: ‡Jeffery & Sons (Hove), Ltd., 206, Portland-rd., Hove 3, £171,447.

British Railways.—The Eastern Region announce that the undermentioned contracts have been placed: *Fletcher & Co. (Contractors), Ltd., Forest-rd., Mansfield—repairs to bridge No. 291 between Tuxford and Retford. *Holliday & Greenwood, Ltd., 11, Buckingham Palace-edns., SW1, construction of main road motor repair shop and ancillary accommodation for new road motor repair depot, King's Cross. *Westinghouse Brake & Signal Co., Ltd., 82, York Way, King's Cross, N1, supply and installation of (1) two primary and eight secondary electro-pneumatic rail brakes with control desks and including spare parts, and (2) compressor plant complete with receivers and piping, for new marshalling yard at Temple Mills.

Cardiff.—34 houses, Penrhos-crescent, Rumney estate, for City C. City S. Quantities by City S. *Blakemore & Knight, Ltd., 8, Neville-pl., Riverside, Cardiff, £50,174.

Carlisle.—Junior school at Pennine Way, for the EC. City E. L. J. A. Stow, 18, Fisher-st., Carlisle: *Barwick Bros., Alpha Mount, Gilsland, £52,676.

Carlisle.—31 bungalows on the Raffles-Newtown Estate, for the City C. City E, L. J. A. Stow, 18, Fisher-st., Carlisle: *John Laing & Sons, Dalston-rd., Carlisle, £29,073.

Coventry.—Foxford Secondary School, for EC: *Bristol Aeroplane Co., Ltd., Weston-super-Mare, £224,927. Laboratories and gymnasium at King Henry VIII Grammar School, Warwick-rd.: *W. H. Jones & Son, Ltd., Holbrook-la., Coventry.

Cudworth (near Barnsley).—50 houses at Darfield-rd. Estate, for UDC: *Wm. Townson & Sons, Ltd., Higher Swan-la., Bolton.

Doncaster.—Phase 1 and 2 of College of Further Education and Technical High School for Boys at Armthorpe-rd., for EC: *Direct labour.

Dudley.—120 non-traditional type flats at Saltwells Estate, for BC: *Geo. Wimpey & Co., Ltd., London, £161,244.

Gateshead.—Superstructure for proposed cubing mill, for J. Rank, Ltd., millers, Hull. Architects, Gelder & Kitchen, 120, Alfred Gelder-st., Hull: *Sir Robert McAlpine & Sons, Ltd., Shell-B.P. House, Newcastle-on-Tyne.

Haslingden.—21 houses and 4 flats at the Broadway Estate, for TC: *D. L. Grimshaw & Co., Waterfoot.

Hove.—23 old people's flats and convenience, Sackville-rd., for BC: *Stone & Son (Builders), Ltd., 51, West-way, Hove, 4, £25,810.

Ipswich.—66 bungalows, Chantry estate 2a, for CBC. Borough Engineer and Surveyor. Quantities by Caston and Porritt: *W. Haward, 129, Tuddenham-rd., Ipswich (one contract for 34); *Macro (Ipswich), Ltd., 80, Henley-rd., Ipswich (one contract for 32).

Ipswich.—14 houses, Chantry estate, and 6 houses, Maidenhall estate, for CBC. Borough Engineer and Surveyor. Quantities by Ashford Trower and Waller: *W. C. Wilkins, 80, Severn-rd., Ipswich (both contracts).

Islington.—Downham and Southgate-rds. housing scheme (32 dwellings):—

Grosvenor Construction, Ltd., E11 ..	£71,437	0	0
M. Howard (Mitcham), Ltd., Mitcham	70,260	0	0
Harold & Bertam, Ltd., SW12 ..	69,852	7	8
R. J. Rowley, Ltd., N17	69,498	0	0
Pitchers, Ltd., N7	69,118	0	0
Jenners (Builders), Ltd., Essex ..	69,000	0	0
Greenaway & Son, Ltd., SE22 ..	68,592	6	6
Rowley Bros., Ltd., N17	67,854	0	0
*W. H. Gaze & Sons, Ltd., High-st., Kingston-on-Thames	67,733	0	0

Jarrow (Co. Durham).—Canteen and showroom at Jarrow bus station, for the Northern General Transport Co., Ltd. Architects, Fennell & Co., Bridge End-chmbrs., Chester-le-Street: *J. M. Black, Ltd., Glen-st., Hebburn-on-Tyne.

Leek.—Ambulance station at the Haregate Estate, for Staffs CC: *Frost & Co. (Builders), Ltd., Rectory-chmbrs., Ironmarket, Newcastle-under-Lyme; 12 houses at Windsor-dr., for UDC: *Tideswell Bros., Ltd., Basford, Stoke-on-Trent, £19,866.

Lichfield.—42 houses at Wheel-la. Estate, for TC: *Sabin & Young, Ltd., Pelsall-la., Rushall, £50,020.

Lindsey.—Infants' school, Pelham-rd., Immingham, for CC. Architect: A. Ronald Clark (County Architect): *F. A. Would, Ltd., Ladysmith-rd., Grimsby, £29,454.

Lindsey.—First phase of Barton-on-Humber Bilateral School, for CC. Architect: A. Ronald Clark (County Architect): *H. Ashton & Son, Newport Joinery Works, Barton-on-Humber, £96,880.

Lindsey.—Steel-framed three-storey block for North Lindsey Tech. College, Kingsway, Scunthorpe, for CC. Architect: A. Ronald Clark (County Architect): *B. Pumfrey, Ltd., Wintern Works, Lea-rd., Gainsborough, £113,949.

Liverpool.—Hebrew Community Centre at Matherav.: *T. Henderson, Parr-st., St. Helens.

¶London (Admiralty).—Particulars of contracts over £1,000 in value:—

Hants: Building repairs, Henry Jones & Son (Portsmouth), Ltd., Aldwell-st., Southsea, Portsmouth; building work, Jenkins & Sons, Ltd., Waterloo-ter., London-rd., Southampton. *Somerset*: Resurfacing roads, H. W. Pollard & Sons, Bridgwater, Somerset; concrete road, etc., J. Perkins & Sons, Ltd., St. Mark's-rd., Easton, Bristol, 5. *Lancs*: Building work, Charles Fildes & Co., Ltd., London-rd., Stockton Heath, nr. Warrington, Lancs.

¶London (Air Ministry).—Contracts to the value of £500 or over for the two weeks ended April 16:—

Building work: Davies Middleton & Davies, Ltd., Phoenix Works, Caerphilly-rd., Cardiff; Woodcock Marshall & Co., Ltd., 2, Westbourne-grove Mews, Westbourne-grove, W11; A. Monk & Co., Ltd., Padgate, Warrington, Lancs. *Repairs to Roofs*: Macartney, Ltd., Birkett House, 27, Albemarle-st., W1. *Resurfacing work*: The General Asphalte Co., Ltd., 56, Milk-st., Digbeth, Birmingham. *Heating services*: Hopes Heating & Engineering, Ltd., Halford Works, Halford-la., Smethwick, Birmingham. *Artificers' work and maintenance of Land*: Stanley H. S. Overton (Airfields), Ltd., Navenby, Nr. Lincoln; Surface Maintenance Services, Ltd., 124, Old Christchurch Road, Bournemouth, Hants; Walter Lawrence & Son, Ltd., Ventnor House, London-st., Swaffham, Norfolk; Wright & Kellett, Ltd., 14, Ashley-ter., Chester-le-Street, Co. Durham; Cooper & Rowe (Contractors), Ltd., 83, Talbot-rd., Bournemouth, Hants; Robert Marriott, Ltd., Midlands Works, Rushden, Northamptonshire; F. Rendell & Sons, Ltd., Devizes, Wilts; W. E. Chivers & Sons, Ltd., Mill-la., Western Avenue, Llandaff, Cardiff; Frank R. Freeman, Ltd., 13/14, Chapel-st., NW1.

London (Metropolitan Police).—Internal cleaning and redecorations, Hampton Police Station and DG. Middlesex Paint Craftsmen, £1,275. Erection of 8 flats, 79, Ladbroke-rd., W11, Allard & Saunders, Ltd., £19,680. Erection of 4 flats, Cobham-ave., Yiewsley, A. E. A. Prouting, Ltd., £9,865. Maintenance, Old-st. Magistrates Court, George Butters & Son, Ltd., £793.

¶London (MoW).—Contracts placed by Ministry of Works for week ended April 2:—

Flintshire: M/H, No. 3 Polish Hospital, Penley.

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alterations to kitchens and dining rooms, Lloyd Evans & Son, Ltd., 23, Smithfield-rd., Wrexham. *Nottinghamshire*: Empire Cinema, Vine-ter., Hucknall, Notts, alterations and additions, George Cooper (B/N), Ltd., Park-la., Basford, Notts. *Yorkshire*: Prison Commission, Grange-ave., Armley, nr. Leeds, erection of 4 semi-detached 4-bedroomed houses, W. J. Kendall & Co., South-par., Pudsey; "Kineholme," Post Office Training School, Otley, new boiler house, F. Storey, Esq., Regent-rd., Ilkley.

¶London (MoW).—Contracts placed by Ministry of Works for week ended April 9:—

Berkshire: AERE, Harwell, new offices for electronics building, No. 347.7, W. E. Chivers & Sons, Ltd., Devizes, Wilts. *Dunbartonshire*: MLNS, Queen-st., Kirkintilloch, extension to building, W. & J. Fletcher, Ltd., Northbank-ave., Kirkintilloch. *London*: HM Tower of London, Tower Hill, EC3, renewal of beams and building work, G. E. Wallis & Sons, Ltd., 231, Strand. *Northamptonshire*: Corby, erection of telephone exchange and garages, Robert Marriott, Ltd., Midland Works, Rushden, Northants. *Staffordshire*: Stoke-on-Trent, erection of a telephone repeater station, C. Cornes & Son, Lichfield-st. Works, Hanley, Stoke-on-Trent. *Warwickshire*: 17, The Parade, Leamington Spa, adaptations to form branch post office, A. W. Gibbons & Son, 1, Oswyngrove, Wyken, Coventry.

¶London (War Dept.).—Contracts placed by War Department for week ended April 9:—

Berkshire: Miscellaneous, Y. J. Lovell & Son, Ltd., Gerrards Cross. *Devon*: Miscellaneous, Pearn Bros., Ltd., Plymouth. *Gloucestershire*: Miscellaneous, John Simmonds, Gloucester. *Lancashire*: Miscellaneous, F. Clark & Sons, Ltd., Liverpool; building work, C. & G. L. Desoer, Ltd., Liverpool. *London*: Building work, Circle Construction Co., Ltd., Wembley. *Middlesex*: Electrical installations, Freeman Electrical Co. (London), Ltd., London. *Nottinghamshire*: Miscellaneous, J. Searson, Ltd., Sutton-in-Ashfield. *Warwickshire*: Fencing work, Fencing (Shepperton), Ltd., Shepperton.

Longbenton.—Plans for the new research laboratory for Thomas Hedley & Co., Ltd., were prepared by Messrs. F. Boreham, Son and Wallace, Victoria House, Southampton-row, London, WC1, and not as stated in our last issue. The contract has been placed at £300,000 with John Laing & Son, Ltd., Carlisle.

Lowestoft.—Reconstruction of South Pier Pavilion, for BC. Quantities by: Ashford Trower & Waller, Lowestoft.

Thos. Gill & Son, Ltd., Rupert-st., Norwich	£44,305
E. Moore & Son, Ltd., Lichfield Works, Gt. Yarmouth	42,906
H. A. Holmes & Son, Ltd., South Ice House Hill, Gorleston	42,679
W. J. Croft, Ltd., Thurston-rd., Lowestoft	44,812
*R. G. Carter, Ltd., Morleys-alley, Gt. Yarmouth	40,776

Lytham St. Annes.—Office block and main store at Preston-rd., for J. Shields, Ltd.: *Direct labour.

Manchester.—Extensions to factory at Baring-st. and Nether-st., Ardwick, for David Moseley & Son, Ltd.: *Mark Pharaoh, 13, Fairview-av., Manchester 19; single-storey extension to offices at 13-16, Park-st., Greenheys, for Plastic Materials, Ltd.: *Normanton Jones & Co., Ltd., 167, Plymouth-gr., Manchester.

March.—20 houses on the Badgeney-rd. estate, for UDC: *J. T. Cox & Sons (Builders), Ltd., £28,300.

Moreton (Cheshire).—Stage 3 of new factory, for Cadbury Bros., Ltd.: *A. Monk & Co., Ltd., Padgate, Warrington, £2¼ m. (approx.).

Nottingham.—Additional accommodation at Middleton Primary School, for EC: *Thos. Long & Sons, Ltd., Falcon-st., Nottingham, £9,486; 24 aged persons' dwellings at Clifton Estate, for TC: *Progressive Builders, Ltd., Lowater-st., Carlton Hill, Nottingham, £26,600.

Oxford.—36 flats at the North Way extension, for City C: *A. C. Carter (Oxford), Ltd., £60,275; 243 Easiform dwellings at Town Furze and Slade housing estate: *John Laing & Son, Ltd., £345,618.

Penrith.—Clothing factory on the Gilwilly industrial site, for Redmayne & Sons. Architect, S. L. Jack, 35, Warwick-rd., Carlisle: *Barwick Brothers, Carlisle.

Salford.—Further 36 flats and 10 houses at Liverpool-st., for TC: *Unit Construction Co., Ltd., Brook-st., Knutsford (extension to contract).

South Bank (Yorks).—30 houses in Caithness-rd. and Braemar-gr.: *Robert Guy, Ltd., Ennis-rd., Redcar.

Stockton-on-Tees.—24 houses by private enterprise in Brentford-rd.: *Lane Fox & Co., Ltd., Norton-rd., Stockton-on-Tees.

Wakefield.—Branch library at Lupset, for TC: *Walter G. Birch (Harrogate), Ltd., Montpellier House, Harrogate, £9,777; hotel at Eastmoor, for Bentleys Yorkshire Breweries, Ltd.: *Alfred Banks & Sons, Ltd., Stanley, nr. Wakefield.

Wallasey.—Moreton sec. mod. sch. for CBC. A, W. P. Clayton, ARIBA, Boro' A. Quantities by W. M. Law & Son. *J. McGeoch & Sons, Ltd., Arbour-la., Kirkby Trading Estate, Liverpool, £105,799.

Warrington.—Extensions to factory at Ellison-st., for Thos. Lockett & Co., Ltd.: *A. Monk & Co., Ltd., Padgate, Warrington.

West Hartlepool.—20 houses in Warwick-gr.: *C. M. Yuill, Ltd., Villiers-st., West Hartlepool.

Wharfedale.—29 houses and 8 bungalows at Church-la. site, Pool, for RDC: *Arthur Gibbs & Son (Pudsey), Ltd.

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